CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0091

NPDES NO. CA0079189

WASTE DISCHARGE REQUIREMENTS FOR CITY OF VISALIA WASTEWATER TREATMENT FACILITY TULARE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. The City of Visalia (hereafter City or Discharger) submitted a Report of Waste Discharge (RWD), dated 9 October 2001, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the City of Visalia Water Conservation Plant, a wastewater treatment facility (WWTF). The City provided supplemental information to complete the application dated 21 November 2001, 28 November 2001, 20 December 2001, 4 January 2002, and 17 January 2002. The WWTF provides municipal sewerage service to the City of Visalia and the unincorporated community of Goshen (combined population 110,000). The WWTF's collection system encompasses approximately 30 square miles. Treated municipal wastewater is discharged to Mill Creek (a water of the United States), recycled on 250 acres of fodder and fiber crops and a 650-acre walnut orchard (Use Area) immediately south of the WWTF, and discharged to onsite disposal ponds. The WWTF and Use Area are on property owned by the Discharger in Sections 5 and 6, T19S, R24E, MDB&M, as shown on Attachment A, a part of this Order.

2. Waste Discharge Requirements Order No. 97-061 (NPDES Permit No. CA0079189), adopted on 28 March 1997, regulates the WWTF and its discharge of up to 16 million gallons per day (mgd) to Mill Creek at the point defined as latitude 36° 18' 45" north and longitude 119° 24' 24" east (Discharge 001), the Use Area (Discharge 002), and the onsite disposal ponds (Discharge 003). Order No. 97-061 was administratively extended on 19 February 2002.

3. Attachment B, a part of this Order, depicts the WWTF's process flow diagram. The WWTF features activated sludge treatment. Domestic and industrial wastewater streams mix in the trunk sewer line and two wet wells before entering the headworks for combined treatment. At present, the WWTF includes two septage receiving stations, two wet wells, two parshall flumes, two bar screens, five primary and five secondary clarifiers, four plastic media trickling filters, four aeration basins, two rapid mix chlorination mixers, five chlorine contact basins, two sludge gravity belt thickeners, seven anaerobic sludge digesters, two unlined sludge pits, and thirty unlined sludge drying beds. The WWTF process return flows consist of gravity belt thickener filtrate, scum from the secondary clarifiers, supernatant from the digested sludge pits, decant from the sludge drying beds, and septage hauler rinse water. These flows amount to about 2% of the plant inflows and enter the WWTF through wet wells prior to the headworks. The City collects its influent samples through these wet

wells. The City recently expanded the headworks to contain five pumps for a total inflow capacity to the WWTF of 46.9 mgd. There is space to add another pump to bring the ultimate long-term capacity to 55 mgd. Construction of a new laboratory building was completed in the summer of 2002. Construction of a primary clarifier, a secondary clarifier, a chlorine contact basin and a digester was completed in November 2003. The Discharger indicates that the current expansion increased the WWTF capacity to 22 mgd from the previous design flow of the WWTF of 16.6 mgd.

4. The anaerobic digesters process primary and secondary clarifier sludge and waste activated sludge, and discharge digested sludge to unlined sludge pits. The capacities of the unlined sludge pits are approximately 5.2 million gallons each and have a detention time of about 93 days. The bottoms are sloped to collect the solids, which are discharged to unlined sludge drying beds. Pumps extract supernatant from near the surface of the unlined sludge pits and return it to the headworks for treatment. The Discharger's RWD indicates the sludge is dried for approximately 60 to 90 days, then transferred to the stockpile area for 1½ to 2 years.

5. Prior to April 2003, the dry stockpiled sludge was applied as a soil amendment at the City's Municipal Airport Farmland twice a year pursuant to Order No. 2004-012-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*. The RWD indicates the WWTF produces an average of approximately 8,275 tons of dried sludge annually.

6. The Discharger disposes of grit and screenings at the Tulare County Resource Management Agency's Visalia Landfill, which is regulated by Waste Discharge Requirements Order No. 99-047.

7. The RWD and Discharger Self Monitoring Reports (SMRs) from 2001 through 2005 characterize the WWTF influent as follows:

Daily Average Flow: 11.94 mgd
Daily Maximum Flow: 15.00 mgd, occurring on 10 July 2005
Design Flow: 22 mgd

	Minimum	Maximum	Annual Average	
Constituent	mg/L	mg/L	mg/L	lb/day
BOD_5[1]	46	1170	402	40,048
TSS[2]	70	3760	372	37,029
Chloride	56	141	73	7,250

[1] 5-day, 20ºC biochemical oxygen demand
[2] Total suspended solids

8. The RWD describes the discharge as follows:

Constituent	Units	Quantity	Percent Removal
Average Summer Temperature	°C	24.7	---
Average Winter Temperature	°C	19.5	---
BOD_5 (average concentration)	mg/L	5	98.9
BOD_5 (mass)	lbs/day	510	98.9
TSS (concentration)	mg/L	8	98.6
TSS (mass)	lbs/day	810	98.6
TKN[1]	mg/L	10.8	---
Ammonia (as N)	mg/L	7.3[2]	---
Nitrate (NO_3-N)	mg/L	1.3	---
Chlorine Residual	mg/L	5.1	---
pH	pH units	7.2	---
EC[3]	µmhos/cm	643	---

[1] Total Kjeldahl Nitrogen
[2] Concentration based on average of three consecutive daily samples; maximum concentration is 8 mg/L.
[3] Conductivity at 25˚C

9. Self Monitoring reports from 2001 through 2005 describe the discharge as follows:

Constituent	Units	Average	Min	Max
2001 Flow	mgd	12.18	10.07	14.78
2002 Flow	mgd	11.61	10.12	14.87
2003 Flow	mgd	11.86	10.34	14.23
2004 Flow	mgd	12.04	10.26	13.73
2005 Flow	mgd	12.01	10.13	15.00
Summer Temperature	°C	25.0	---	---
Winter Temperature	°C	20.0	---	---
BOD_5	mg/L	5.7	1	19
TSS	mg/L	6.8	1	50
TKN	mg/L	12.7	3.2	23
Nitrate (NO_3)	mg/L	3.8	0.2	22
Chloride	mg/L	73	56	141
Chlorine Residual	mg/L	5.0	0.8	15.5
pH	pH units	---	5.14	7.76
EC	µmhos/cm	661	309	939

10. The U.S. Environmental Protection Agency (USEPA) and this Regional Water Board have classified this discharge as a major discharge.

11. The City obtains drinking water from a network of wells. In the City's 2000 Water Supply Report, 1998-2000 concentrations in the City's source water of total dissolved solids, conductivity at 25°C, and hardness averaged 144 mg/L, 229 µmhos/cm, and 82 mg/L, respectively.

12. The discharge EC is, on average, about 410 µmhos/cm greater than source water EC (Finding Nos. 8 and 11).

13. Discharger SMRs from 2001 through 2005 indicate that winter influent flows are not higher than summer flows, demonstrating insignificant inflow and infiltration to the collection system during winter months.

14. Discharger SMRs from 2001 through 2005 indicate the WWTF treatment process is not fully nitrifying, as its effluent consistently contains concentrations of TKN that are significantly greater than the nitrate concentrations. The discharge contains ammonia (Finding No. 8), which is toxic to aquatic life (Finding No. 76).

15. The Discharger provided toxicity testing data that indicated WWTF effluent, after laboratory dechlorination, failed the chronic toxicity test for algae (*Selenastrum capricornutum*) growth. Reasons for the toxicity have not been determined.

16. The Discharger contends the 15.65 acres of unlined sludge drying beds to be "self-sealed" through use and that this natural process is adequately protective of area groundwater. The "self-sealing" process has proven ineffective for protecting groundwater quality at other wastewater treatment facilities within the region and there is insufficient data to determine its effectiveness here. The Discharger has indicated that each time it removes dried sludge from the beds it inadvertently removes some surface soil from the bottom of the beds. This practice likely diminishes the effectiveness of any "self-sealing" process to protect groundwater quality.

17. The City's has discharged to the WWTF's disposal ponds approximately 30% of the time since making Mill Creek and the Use Area the primary means of disposal in 1996. For several years, it has allowed haulers of grease trap waste to discharge to one of its unused disposal ponds. The grease waste has high BOD_5 (exceeding 20,000 mg/L) and total nitrogen up to 1,000 mg/L. While the waste is not likely hazardous, it is a designated waste, as defined in Section 13173(b) of the California Water Code (CWC); the disposal impoundment does not qualify as a Class II impoundment and the Discharger had not filed a RWD for this unauthorized discharge. The Discharger was cited, in a Notice of Violation issued on 7 March 2002, for unauthorized discharge of grease trap wastes in violation of Order No. 97-061. The City changed its method of handling the grease trap waste in November 2002 and is now accepting the waste at the WWTF headworks and treating it in the anaerobic digesters.

INDUSTRIAL PRETREATMENT PROGRAM

18. The City's Industrial Pretreatment Program (IPP) and Sewer Ordinance were approved by Notice of Decision dated 5 May 1983.

19. Cease and Desist Order (CDO) No. 97-062, adopted on 28 March 1997 and rescinded 18 October 2002, required, in general, the Discharger to enforce fully its IPP and establish industrial discharger EC effluent limits; and to define, contain, and cleanup degraded groundwater. An olive processor left and other high EC dischargers made modifications, and the Discharger has since complied with the effluent limitation for EC.

20. On 25 March 1999, the City entered into a Memorandum of Understanding (MOU) with the Goshen Community Services District (District), agreeing that the City would (a) be responsible for day-to-day management, operation and maintenance of the WWTF and its collection system; and (b) regulate Goshen industrial discharges to the WWTF through the City's IPP. Copies of the MOU and Ordinance are under legal review by the State Water Resources Control Board (State Water Board). Preliminary findings of State Water Board's review of the City's ordinance (Visalia Municipal Code Chapter 13.08); the District's ordinance SO96-1, revised 16 October 1995; the 5 June 1995 Wastewater Service Agreement (Agreement); and the 25 March 1999 MOU include the following:

    a. The City's and District's ordinances require revisions to be considered legally adequate.

    b. The Agreement and the MOU do not provide the City with the authority necessary to enable it to fully implement and enforce its IPP against industrial users in the District's jurisdiction.

21. There are 17 Significant Industrial Users (SIUs), seven of which are listed as Federal Categorical dischargers pursuant to Title 40 Code of Federal Regulations (CFR). One SIU is Southern California Edison (SCE), which discharges groundwater treated to remove phenol and pentachlorophenol into the collection system. The Discharger indicates that the groundwater treatment process employed by SCE has consistently reduced the concentrations of these two constituents to nondetectable levels. State Water Board's legal review in 2002 indicates the City is in substantial compliance with the implementation of its IPP. The City's and the District's ordinances and the multijurisdictional agreement between the City and the District need to be revised to make them legally acceptable in accordance with State Water Board's legal review. On 12 April 2006, the City submitted a revised ordinance which is currently under legal review by State Water Board. Completion and adoption of the District's revised ordinance and MOU are currently scheduled for 24 June 2006. Provision H.16 of this Order contains a compliance schedule for completion of the remaining necessary revisions.

WATER RECYCLING

22. The 1988 Memorandum of Agreement (MOA) between California Department of Health Services (DHS) and the State Water Board on the use of recycled water establishes basic principles relative to the agencies and the regional water boards. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California.

23. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. DHS, which has primary statewide responsibility for protecting public health, has established statewide criteria in Title 22, California Code of Regulations (CCR), Section 60301 et seq., (hereafter Title 22) for the use of recycled water and has developed guidelines for specific uses.

24. Blain Farms (Grower) farms the walnut orchard of the City's Use Area under a yearly management agreement with the City that extends to 1 December 2006.

25. In 1994, DHS approved the City's recycling of WWTF effluent on the Use Area, using flood-irrigation of the Use Area provided:

    a. The most probable number of total coliform bacteria in recycled water never exceeds a 7-day median of 23 per 100 mL or a 2-consecutive-day maximum of 240 per 100 mL;

    b. Samples of recycled water for bacteria analysis were collected at Discharge 002;

    c. Reclaimed water is not applied within 30 days of walnut crop harvest;

    d. The Grower always informs the recipient of walnuts that the walnuts contain sewage-borne organisms on the hulls;

    e. Walnuts are handled in a good hygienic manner that prevents contamination of shells when the hulls are removed; and

    f. If used for human consumption, the walnut meats are cleaned by a procedure that meets the California Food Sanitation Act (Health and Safety Code, Division 22, Chapter 7).

26. By letter dated 19 August 2002, DHS commented on the Discharger's Title 22 engineering report dated 7 June 2002 and the tentative waste discharge requirements for the City's discharge circulated 31 July 2002. The DHS letter recommended that the walnut orchard (Use Area) be irrigated with recycled water that at least meets the requirements of the disinfected secondary-2.2 recycled water as defined in Title 22 Section 60301.220. The letter further indicated that this will necessitate an increase in treatment requirements (i.e., chlorination), and noted that the WWTF's chlorine contact basins are designed to produce an effluent meeting the disinfected secondary-2.2 coliform concentrations at a 16.6 mgd flow.

The DHS letter also recommended that the monitoring and reporting program include minimum effluent monitoring requirements for total coliform and notification within 24 hours of failure of chlorination equipment, loss of detectable chlorine residual, and effluent total coliform greater than 240 MPN/100 mL. The letter further recommended that the City install a continuous chlorine residual analyzer that will trigger an alarm based on low or nondetectable chlorine residual.

In a letter to the regional water boards dated 8 January 2003, the DHS Food and Drug Branch (which has oversight of all food and drug products) indicated its position concerning the application of recycled water on orchard and vineyard crops. It believes orchard and vineyard crops will likely come in contact with recycled water or soil irrigated with recycled water through typical harvesting practices. As a result, the Food and Drug Branch recommends that orchard and vineyard crops be irrigated with recycled water that at least meets the requirements of the disinfected secondary-2.2 recycled water as defined in Title 22 Section 60301.220. This letter supports DHS Office of Drinking Water recommendations in the 19 August 2002 letter regarding the level of treatment necessary for the recycled water applied to the City's walnut orchard (Use Area).

27. The Discharger, by letter dated 9 September 2002, indicated that, to consistently comply with the 2.2 MPN/100 mL total coliform limit, the City would need to modify the chlorine contact basins and increase the detention time. It questioned whether these modifications would be cost effective. The Discharger also indicated that it would likely suspend irrigating the walnut orchard until significant modifications to the chlorine contact basins could be completed. Discharge to the walnut orchard was suspended in May 2002

SURFACE HYDROLOGY, SOILS, LAND USE, AND GROUNDWATER

28. The WWTF lies within the Tulare Lake Basin, specifically within the Kaweah Delta Hydrologic Unit (No. 558.10), as depicted on interagency hydrologic maps prepared by the California Department of Water Resources (DWR) in 1986.

29. The WWTF is in a semi-arid region with an average annual precipitation of 10.1 inches. The reference evapotranspiration for the City is 54.3 inches, according to Title 23, CCR, Section 495.

30. The WWTF lies within the 100-year flood hazard, according to maps published by the Federal Emergency Management Agency. However, the City indicates it constructed the WWTF above the 100-year flood plain elevation.

31. Areal topography indicates a slope of about 1.2 feet per 1,000 feet towards the southwest. The Discharger retains storm water runoff on the WWTF property and either pumps the runoff to the headworks or directs the flows to dedicated unlined storm water retention ponds.

32. Mill Creek flows southwesterly from Lake Kaweah in the foothills east of the City and is ephemeral, conveying short-duration storm water runoff, flood releases from Lake Kaweah, and occasionally delivering irrigation supply water from Lake Kaweah or the Friant-Kern Canal. As Mill Creek passes through the City, it receives additional storm water along with two minor NPDES discharges consisting of non-contact cooling water from the Visalia Medical Clinic (WDRs Order No. 97-119, NPDES No. CA0080900) and from Kraft, Inc. (WDRs Order No. 97-122, NPDES No. CA0081256). Except for periods of significant storm water runoff, flood releases from Lake Kaweah, or irrigation deliveries, Mill Creek upstream of the City's discharge is usually dry. Irrigation deliveries through Mill Creek typically occur from the end of May through mid-July and terminate at the diversion at Persian Weir, several miles upstream from the City's discharge. Accordingly, Mill Creek downstream of Discharge 001 is an effluent dominated water body. Due to Mill Creek's gradual slope, effluent backs about 5,000 feet upstream of Discharge 001 and creates a condition of "backwater" that does not qualify as upstream receiving water.

33. The City discharges to Mill Creek year-round except for about five weeks in the summer when Kaweah Delta Water Conservation District (District) conducts routine maintenance of the channel and for relatively short-duration flood flows, storm water runoff, or irrigation deliveries. The City owns 160 acres of percolation ponds roughly four miles west of the WWTF. About one mile downstream from Discharge 001, a diversion structure within Mill Creek allows the District to divert Mill Creek flows to these basins as depicted in Attachment A. The basins are used to increase groundwater recharge. The City currently owns the property occupied by the percolation basins. Flow not directed to the basins flows south in Mill Creek and may occasionally reach Cross Creek several miles downstream. Cross Creek is ephemeral and flows primarily during heavy storm water runoff and flood releases from Lake Kaweah. The District indicated that Cross Creek occasionally flows to the Tulare Lake Bed, but believes effluent reaching Cross Creek would likely flow only a short distance due to the size and dryness of the creek bed. Agricultural lands bound the portion of Mill Creek between Discharge 001 and Cross Creek.

34. Before the City initiated regular discharge to Mill Creek in 1996, the creek would go dry during summer months. For the five years from 2001 to 2005, the City discharged 71 percent of the days to Mill Creek. The California Department of Fish and Game (DFG) determined that Mill Creek was not a fishery, but has not provided a determination regarding other forms of aquatic life. One definition of "fishery" is a place where fish can be caught. The California Fish and Game Code does not specifically define "fishery" but defines "fish" in Section 45 as meaning "wild fish, mollusks, crustaceans, invertebrates, or amphibians, including any part, spawn, or ova thereof." Now that Mill Creek conveys WWTF effluent on a regular basis, it has the potential to support warm freshwater aquatic habitat. Although fish enter Mill Creek with irrigation deliveries from Terminus Reservoir or the Friant-Kern Canal, hydrologic modifications (e.g., diversion weirs and gates) prior to its terminus diversion at Persian Weir preclude a fish habitat downstream of Persian Weir. Intermittent and ephemeral flow conditions prior to 1996 prevented attainment of a warm freshwater habitat. Flow conditions changed by the City's regular discharge are at sufficient rates to attain this use if effluent is of sufficient quality. Discharges from the WWTF have sufficiently changed the flow regime of Mill Creek downstream of Discharge 001 that this reach of Mill Creek has the potential to support a warm freshwater habitat if the toxicity caused by chlorination is

removed from the effluent through dechlorination.

35. Discharger SMRs for 2005 do not indicate the Discharger exceeded the receiving surface water limitations of Order No. 97-061 other than the limit for maximum incremental pH change. The receiving water limitation for maximum incremental pH change was exceeded on several occasions due to the effluent dominated nature of the receiving water. Order No. 97-061 did not specify limits associated solely with protection of warm freshwater habitat and did not require the Discharger to conduct effluent and receiving water toxicity monitoring. In completing Form 200 for NPDES renewal, the Discharger was required to provide toxicity testing data, which indicated its effluent, after laboratory dechlorination, failed the chronic Selenastrum Algae growth toxicity test. The Discharger has not conducted a Toxicity Identification Evaluation to determine the cause of toxicity, although chlorine and ammonia are likely toxicants.

36. Area soils are moderately permeable alluvial deposits originating in the Sierra Nevada Mountains to the east. The surface soil is classified as Tagus fine sandy loam. The geology of the Visalia area generally consists of deep underlying metamorphic and granitic rock overlain by hundreds of feet of alluvium. More specifically, the first 100 feet below ground surface (bgs) contains interbedded sand zones that are periodically saturated depending on the lateral proximity to surface water (e.g., disposal and percolation ponds and canals). The interbedded sand zone is underlain by relatively thin saturated beds of sand mixed with clay, clayey silt, and silt that extend to depths of 240 to 275 feet bgs. The RWD designates groundwater within the interbedded sand zone as the upper aquifer, and indicates the majority of the water supply wells in the area are completed within this zone. The highly impermeable and regionally extensive E-clay layer lies beneath these soils and is approximately 20 feet thick. Stratigraphic and water quality data indicate the E-clay to be the first effective aquitard in the upper portion of the regional aquifer, however its effectiveness as an aquitard has been reduced by numerous wells that penetrate the E-clay layer. The RWD identifies the lower aquifer as the groundwater lying beneath the E-clay.

37. Land use in the WWTF vicinity is primarily agricultural and includes numerous dairies not regulated by WDRs. Farmers along Mill Creek with riparian water rights use creek water to irrigate their crops. Area dairies also irrigate associated fodder crop acreage with dairy wastewater. Regional land use data compiled by DWR indicates fodder crops of furrow-irrigated corn and border strip-irrigated alfalfa are the primary crops and irrigation methods. A small percentage of land in the WWTF and discharge area contains walnut and pistachio orchards. Effluent discharged to Mill Creek meets the quality criteria of Disinfected Secondary-23 recycled water, as defined in Title 22, CCR, Section 60301.225. Accordingly, use of effluent to irrigate fodder crops by riparian diverters is consistent with Title 22 recycling criteria. While Mill Creek downstream of the City's discharge is accessible by the public, there is no nearby habitation except for farm residences, and limited public use of the discharge area.

38. Pursuant to Order No. 97-061, the Discharger collected soil samples on an annual basis from seven locations at the Use Area. Soil samples were collected from depths of 2, 4, and 6 feet bgs and analyzed for nitrate-nitrogen and total kjeldahl nitrogen. The sampling results are ambiguous with nitrogen concentrations attenuating with depth at some locations and increasing with depth at others.

39. Regional first-encountered groundwater flows west-southwesterly and occurs about 80 to 90 feet bgs, according to information in *Lines of Equal Depth to Water in Wells, Unconfined Aquifer*, published by DWR in Spring 2000.

40. In 1986, the Discharger installed five groundwater monitoring wells (MW-A, MW-B, MW-C, MW-D, and MW-E) to depths from 30 to 60 feet bgs. At that time, the Discharger used the disposal ponds to dispose of about half the effluent flow, causing groundwater to mound beneath the ponds. With the lowering of the regional groundwater table that occurred throughout the San Joaquin Valley from the 1987 - 1992 drought, all but MW-B have been dry from 1992 and MW-B has been dry since about 1993. In 1992, the Discharger installed MW-F, MW-G, and MW-H, upgradient, on-site, and down gradient of the WWTF. These were installed to about 100 to 110 feet bgs. MW-F, about one mile northeast of the WWTF, is adjacent to an irrigation ditch and water quality data indicates the well may reflect high quality percolated irrigation water, which is not representative of regional groundwater. A monitoring well at a more appropriate location is necessary to establish representative regional background groundwater quality.

41. In CDO No. 97-062, this Regional Water Board found that groundwater underlying and downgradient of the WWTF was degraded with salinity constituents (e.g., sodium, chloride, sulfate, and calcium). Groundwater elevation and chemical data indicated a mound of salt-degraded groundwater radiating outward from beneath the WWTF disposal ponds. The Discharger measured the highest EC value in MW-G at 1,300 µmhos/cm in October 1993.

42. Because of CDO No. 97-062, the City defined to some degree the horizontal and vertical extent of the degraded groundwater. The City installed ten additional groundwater monitoring wells in 1997 such that nested wells at locations H, J, and K monitor the upper groundwater, groundwater just above the E-clay, and groundwater just beneath the E-clay.

43. The 30 January 1998 *Groundwater Investigation Report* (Report), by Boyajian & Ross, Inc., identified the plume of degraded groundwater emanating from beneath the WWTF's disposal ponds. The Report also identified groundwater collected from periphery wells that show significant adverse impacts from dairies (e.g., degradation for salinity constituents and nitrate). The Report proposed to pump agricultural wells at the WWTF margin to hydraulically control the highest concentrations of effluent-derived salts in the upper aquifer and either discharge to Mill Creek or irrigate the Use Area. Agricultural wells generally withdraw groundwater through vertically extensive perforations and are not generally efficient in achieving plume containment. The Report proposed for the upper aquifer numerical limits for specific waste constituents (i.e., total coliform, EC, iron, nickel, chloride, fluoride, sulfate, TDS, nitrate, and sodium). The proposed limits reflected either (1) concentrations necessary to preserve beneficial uses or (2) maximum concentrations detected in groundwater for the past five years, whichever proved

lower. The Report recommended the limits be reviewed every five years and, where appropriate, reduced as groundwater quality conditions improved with the City's compliance with the effluent limitation for EC and reliance on a Mill Creek discharge. The Report's approach is not fully consistent with water quality plans and policies and does not establish receiving water limitations sufficiently stringent to protect existing and anticipated beneficial uses. Further documentation is necessary to develop appropriate groundwater limitations, and it is fair and equitable that the Discharger be allowed a reasonable time to compile this documentation.

44. The City discharges approximately 29% of its effluent to the onsite disposal ponds each year. Recent groundwater data indicate that the groundwater mound beneath the WWTF has subsided and the west-southwest regional groundwater flow direction has been reestablished.

45. The Discharger failed to conduct required semiannual groundwater monitoring in 2005. The most recent groundwater monitoring data is summarized in the Discharger's *Spring 2006 Groundwater Monitoring Report* (Spring 2006 Report) and indicates a reduction in the high salinity groundwater identified in the Discharger's 30 January 1998 Report. MW-G, at the southeast end of the WWTF, initially showed the greatest impact with EC of 1,300 µmhos/cm and chloride above 120 mg/L. Groundwater at MW-G now has EC and chloride of about 1,200 µmhos/cm and 75 mg/L, respectively. Similar reductions in salt constituent concentrations occurred in MW-J1, MW-K1, and MW-M. Regional groundwater pumping of agricultural wells may have achieved what the Discharger proposed to implement pursuant to the CDO.

46. The City's Spring 2002 Report included a water sample from MW-B for the first time since 1993. Further samples were collected in fall 2004 and spring 2006. Results of the spring 2006 sample show EC of 720 µmhos/cm, 68 mg/L chloride, and 47 mg/L nitrate (as N). The drinking water standard for nitrate is 10 mg/L as N. Possible sources of the salinity degradation and nitrate pollution may be the City's previously unpermitted disposal of grease trap wastes to WWTF disposal ponds, use of unlined sludge handling facilities, and nearby agricultural practices.

47. The City's nested groundwater monitoring wells at location H, identified as MW-H1, -H2, -H3, are within one mile of six dairies. Samples collected from MW-H1 in 2001, 2002, 2003, 2004, and 2006 indicate an average EC of 1,187 µmhos/cm and average concentrations of chloride and nitrate (as N) of 92 and 148 mg/L, respectively. Groundwater samples collected during the same period from MW-L, within ¼ mile of three dairies, showed an average EC of 1,012 µmhos/cm, and average concentrations of chloride and nitrate (as N) of 48 mg/L and 108 mg/L, respectively.

BASIN PLAN AND REGULATORY CONSIDERATIONS

48. *Water Quality Control Plan for the Tulare Lake Basin*, *Second Edition),* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. The Basin Plan incorporates plans and policies of the State Water Board by reference, including State Water Board Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation" Policy) and State Water Board Resolution 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304."

49. State Water Board Resolution 92-49 addresses procedural requirements for investigation as well as cleanup and abatement of unauthorized discharges. A discharger shall be required to conduct step-by-step investigations for this purpose, to submit written workplans and reports for all elements and phases, to conform to the provisions of Resolution 68-16, and to cleanup and abate the effects of the discharge in a manner that promotes attainment of background water quality or the highest water quality that is reasonable and which does not exceed water quality objectives. Chapter IV of the Basin Plan contains Regional Water Board policies on *Antidegradation* and *Ground Water Cleanups* that further explain and enhance these State Water Board policies.

50. Water in the Tulare Lake Basin is in short supply, requiring importation of surface waters from other parts of the State. The Basin Plan encourages reclamation on irrigated crops wherever feasible and indicates that discharges to surface water and evaporation of reclaimable wastewater will not be acceptable permanent disposal methods where the opportunity exists to replace an existing use or proposed use of fresh water with recycled water. Where appropriate, the Basin Plan allows a timetable for implementing reclamation. The City's discharge constitutes a significant source of agricultural supply water and groundwater recharge.

51. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan describes numerous salt management recommendations and requirements. The latter includes the requirement that discharge to land from wastewater treatment facilities not contain an EC greater than source water plus a maximum 500 µmhos/cm, or less if necessary to achieve water quality objectives. Accordingly, the Basin Plan allows for salinity degradation and focuses on controlling the rate of increase. The Basin Plan limits discharges to areas that recharge to good quality groundwater to a maximum EC of 1,000 µmhos/cm, and a maximum concentration of chloride and boron of 175 and 1.0 mg/L, respectively. These effluent limits are considered best practicable treatment and control (BPTC).

52. Mill Creek, not specifically identified in the Basin Plan, is a Valley Floor Water where designated beneficial uses are addressed within a group identified as Valley Floor Waters. Beneficial uses designated by the Basin Plan for Valley Floor Waters, and thus Mill Creek downstream of the discharge, are listed below along with a description of what is known specific to this reach of Mill Creek:

    a. *Agricultural Supply* (AGR). The State Water Board has granted water rights to existing water users downstream of the discharge for irrigation uses. The discharge comprises most of the flow in Mill Creek during much of the year from discharge point to percolation ponds. Mill Creek water downstream of the discharge point is currently used to irrigate fiber and fodder crops (e.g., pasture, Sudan grass, silage corn, wheat, oats, barley, and alfalfa). It has yet to be documented what other crops have the potential to be grown with water from Mill Creek.

    b. *Industrial Service Supply* (IND) *and Industrial Process Supply* (PRO). The case file contains no evidence that Mill Creek water is utilized or likely to be utilized for these purposes.

c. *Water Contact and Noncontact Water Recreation* (REC-1 and REC-2). Mill Creek downstream of the discharge point flows through areas where there is public access, but little human habitation. While the case file contains no evidence of REC-1 or REC-2 occurring, the presence of water in a natural setting accessible to the public makes it probable both do and will occur.

d. *Warm Freshwater Habitat (including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates)* (WARM) *and Wildlife Habitat* (WILD). Most of the flow in Mill Creek downstream of the discharge is diverted to four percolation ponds approximately four miles downstream from the WWTF. Thus, Mill Creek is normally dry downstream of the point where flow is diverted to the percolation ponds. This effectively precludes upstream migration of warm-water fish species from any warm-water fisheries downstream of Mill Creek. Mill Creek has the potential to support and may have historically supported aquatic life such as crayfish and frogs. Regional Water Board inspectors observed and documented a muskrat swimming in Mill Creek about 1.5 miles downstream of the discharge point during an inspection on 2 April 2003. Regional Water Board inspectiors have also observed various aquatic flora downstream of the discharge and bullfrog tadpoles in a downstream tributary to Mill Creek. Aquatic life may migrate to the downstream reach during periods of continuity with the reach above Persian Weir, as during flood releases. The lethal effects of chlorine, and possibly even ammonia, in the current effluent likely adversely affects habitat. At the time Order No. 97-061 was adopted, this Regional Water Board exercised judgment authorized by the Basin Plan to determine on a case-by-case basis whether a designated beneficial use was really applicable to the reach or portion of a water body. It determined then that WARM was not applicable and thus Order No. 97-061 does not establish an effluent limitation for residual chlorine nor require toxicity monitoring. The exclusion of WARM was due to the DFG determination cited in Finding No. 34 that was made based on the intermittent and ephemeral flow conditions in Mill Creek prior to 1996, the year the City initiated its regular discharges. Now that Mill Creek from the point of discharge sustains a regular flow for most of the year, it is reasonable to expect the current flow conditions are capable of attaining and maintaining some degree of WARM and WILD. WARM must be protected from toxic concentrations of chlorine and other pollutants. Further, a State Water Board precedential decision (Finding No. 54) and a USEPA objection to the judgment provision of the Basin Plan has since changed the Regional Water Board's application of rule.

e. *Rare, Threatened, or Endangered Species* (RARE). The case file indicates DFG determined that Mill Creek does not support rare and endangered species.

f. *Groundwater Recharge* (GWR). Water conveyed in Mill Creek infiltrates along its reach and is diverted to percolation basins that serve to recharge groundwater, which provides a source of domestic and agricultural water supply.

53. The Basin Plan recognizes that some uses may not currently exist and probably may not be supported in the future, at least for certain portions of the receiving waters. Thus, consideration for removing some of the beneficial uses may be appropriate. The Regional Water Board,

however, is not authorized to remove such uses unless it follows the public processes required by state law and the federal regulations (i.e., by amending the Basin Plan). Although Mill Creek may not support all the designated beneficial uses, unless the Basin Plan is amended specifically for this, all designated beneficial uses must be protected from impacts of the discharge.

54. The State Water Board adopted Order No. WQ2002-0015 on 3 October 2002 concerning regulation of Vacaville's Easterly Wastewater Treatment Plant. This precedential decision provides guidance on implementing the protection of designated beneficial uses in an effluent dominated water body where the Regional Water Board believes actual and probable uses may warrant re-evaluation. Some of the guidance may be relevant to the Visalia WWTF discharge.

55. The beneficial uses for Mill Creek affecting the most stringent effluent limitations of this Order are REC-1 and WARM. Whether other designated beneficial uses exist or not is unlikely to change the effluent limitations of this Order. This Regional Water Board determined that WARM and REC-1 are existing and probable beneficial uses in Finding No. 52.

    Although REC-1 and WARM exist or are probable, a process exists for reconsideration of both these. The facts concerning WARM appear nonrefutable. If the Discharger provides facts to establish that REC-1 does not exist and is unlikely to occur in the future in Mill Creek, then this beneficial use can be fully evaluated through a Use Attainability Analysis (UAA) and changed if appropriate. As State Water Board Order No. WQ2002-0015 makes clear, a discharger bears the responsibility for providing the information to support this evaluation. To the extent that REC-1 designation/dedesignation is relevant in this case, the Discharger should consider evaluating alternatives for the discharge to determine the most cost effective course of action (e.g., increased treatment, alternative methods of disposal, studies to support dedesignating beneficial uses, etc.). During a 27 July 2006 meeting with Regional Water Board staff, the City indicated its intent to complete studies including a facilities plan that evaluates whether there is a need for continued NPDES discharge, and if so, the feasibility of providing information necessary to support dedesignation of WARM and REC-1 in Mill Creek.

56. Based on available information and the Discharger's application, Mill Creek, absent the discharge from the WWTF, would be a low-flow/intermittent stream. The ephemeral nature of Mill Creek means that no credit for receiving water dilution is available for determining concentrations in effluent that will be protective of designated beneficial uses. As the receiving water maintains WARM, pollutants may not be discharged in concentrations that cause harm to aquatic life.

57. The Basin Plan designates the beneficial uses of area groundwater as municipal and domestic supply (MUN), industrial service supply (IND), industrial process supply (PRO), agricultural supply (AGR), and water contact recreation (REC-1), and noncontact water recreation (REC-2).

58. The Basin Plan establishes numeric and narrative water quality objectives for surface waters and groundwater within the basin. Numeric water quality objectives are quantified. Numerical and narrative water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water unless higher levels are the result of factors that cannot be reasonably controlled or are not subject to the authority of the State and Regional Water Boards. The

Basin Plan contains narrative water quality objectives for, among other things, Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity narrative objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents narrative objective states, among other things, that ground "shall not contain chemical constituents in concentrations that adversely affect beneficial uses." The Tastes and Odors narrative objective states that groundwater "shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses." Chapter IV, Implementation, of the Basin Plan contains the "Policy for Application of Water Quality Objectives." This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated on a case-by-case basis considering numerical criteria and guidelines developed and/or published by other agencies and organizations.

59. Pursuant to CWC Sections 13263(a) and 13377, waste discharge requirements must implement the Basin Plan and consider the beneficial uses and water quality objectives reasonably required to protect the uses, the need to prevent nuisance, as well as other waste discharges and conditions in the area and groundwater. The Basin Plan requires that waste discharge requirements apply all water quality objectives for each constituent to ensure that discharges do not cause groundwater to contain chemical constituents, toxic substances, radionuclides, pesticides, or taste- or odor-producing substances in a concentration that adversely affects any beneficial use. To protect all beneficial uses, the most stringent objective for each constituent must be met.

60. State Water Board Resolution No. 68-16 (hereafter Resolution No. 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters of California" (hereafter Resolution 68-16 or the "Antidegradation Policy") requires the Regional Water Board in regulating the discharge of waste to maintain high quality waters of the State (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that any discharge to the existing high quality water be required to meet waste discharge requirements which will result in the Best Practicable Treatment or Control (BPTC) of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained.

61. To protect the designated use of municipal and domestic supply, water quality objectives require, at a minimum, that waters not exceed maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: sections 64431 (Inorganic Chemicals, including Fluoride); 64443 (Radioactivity); 64444 (Organic Chemicals); and 64449 (Secondary MCLs – Consumer Acceptance Limits).

62. The Basin Plan's incorporation of MCLs by reference is prospective to incorporate changes to MCLs as changes in Title 22 take effect. Should a change occur to an MCL and that MCL becomes the most stringent objective, this Order may be reopened to implement a new objective.

63. Wescot and Ayers in a 1985 publication *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29*, (hereafter Guidelines) contains agricultural goals and relevant information regarding the quality of irrigation water to sustain various crops.

64. The major constituents of concern in assessing the quality of water for agriculture are salinity (expressed as EC or TDS), boron, chloride, and sodium. In general, animal uses are less sensitive than crops for these constituents. Salinity reduces crop growth by reducing the ability of plant roots to absorb water. The salt tolerance of crops also depends on the frequency and type of irrigation (e.g., drip, furrow, or sprinkler irrigation). Sprinkler irrigation has the greatest impact due to foliar absorption of salt. Absorption and foliar injury are further influenced by high temperature, low humidity, and drying winds, type of sprinkler, and timing of irrigation. Boron is an essential element but can become toxic to some plants when concentrations in water even slightly exceed the amount required for optimal growth. Like salt tolerance, boron tolerance varies with the climate, the soil, and the crop. While boron sensitivity appears to affect a wide variety of crops, sodium and chloride toxicities are mostly limited to tree crops and woody perennials (e.g., citrus, stone-fruit, and vineyard). A predominance of sodium relative to other ions in irrigation water may disperse soil aggregates, which in turn, affects virtually all crops by decreasing the permeability of the soil by water and air.

65. In determining the concentrations of salinity, boron, chloride, and sodium in groundwater associated with no adverse affects on agricultural beneficial use in a given area, it is likely that multiple criteria apply. While the most stringent concentration becomes the constraining criterion, it is not necessarily the concentration that is required to protect all crops that have the potential to be grown in the area.

66. The Guidelines present the maximum EC of irrigation water for various crops with respect to percent crop reductions (i.e., 0, 10, 25, and 50). The table below extracts irrigation water EC data (in µmhos/cm) for crops known to be cultivated in the WWTF vicinity (as described in Finding No. 37). As indicated below, crop yield reductions are not evident when irrigating all crops currently cultivated in the WWTF vicinity with water having an EC of less than 1,100 µmhos/cm.

Crop	0% Reduction	10% Reduction
Walnut	1,100[1]	1,600[1]
Corn (Forage)	1,200	2,100
Alfalfa	1,300	2,200

[1] Value from 1976 version of Ayers and Westcot's *Water Quality for Agriculture*

67. With respect to specific-ion toxicity, the Guidelines and other similar references indicate that significant reductions in crop yields can be expected if boron content exceeds 0.7 mg/L for boron-sensitive crops (e.g., walnut). Similarly, reductions in yields of sodium- and chloride-sensitive crops are evident when sprinkler irrigated with water containing sodium and chloride concentrations of up to 3 milliequivalents per liter (me/L) (i.e., 69 mg/L sodium and 106 mg/L chloride). If such crops are not sprinkler irrigated, the maximum concentrations of sodium and chloride associated with no apparent yield reduction may increase; however, the extent of the increase is typically crop specific.

68. The use of municipal wastewater for irrigation at agronomic rates will have a comparable impact on groundwater as fresh water of comparable quality. Beneficial reuse of wastewater conserves freshwater resources and is encouraged within water short areas by the Basin Plan as well as legislature (CWC 13500 et. Seq.).

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

69. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) [Title 33, United States Code (U.S.C.) 1251, 1312, 1311, and 1317, respectively], and amendments thereto are applicable to the discharge.

70. The USEPA promulgated the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain water quality criteria (WQC) applicable to this discharge. The State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the *State Implementation Plan* or SIP) on 18 May 2000, which contains implementation procedures for criteria of the NTR and the CTR. The SIP was amended by State Water Board on 24 February 2005.

71. Federal regulations (40 CFR Section 122.44(d)) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. This Order contains provisions that:

    a. require the Discharger to provide information as to whether the levels of *CTR*, *NTR*, and USEPA priority toxic pollutants in the discharge cause or contribute to an in-stream excursion above a water quality objective;

    b. require the Discharger to submit information to calculate effluent limitations for those constituents in the discharge found to have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective; and

    c. allow the Board to reopen this Order and include effluent limitations for those constituents.

72. Section 13263.6(a), CWC, states:

> The regional board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW [Publicly Owned Treatment Works] for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) indicate as discharged into the POTW, for which the state board or the regional board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective.

The Discharger has not discharged toxic chemicals through 2003, according to the Right To Know Network Toxic Release Inventory Database (www.rtknet.org/new/tri).

73. Uniform guidelines for Wastewater Disinfection (Uniform Guidelines) prepared by DHS recommend levels of treatment for various wastewater discharge situations for health protection. Uniform Guidelines consider both available dilution and the type of receiving water use. For ephemeral streams with little or no natural flow during all or part of the year, there is no nearby habitation and limited use of the discharge area and the beneficial use of the discharge area does not include recreation and contact with the discharge is not encouraged, the Uniform Guidelines recommend a median coliform MPN not exceeding 23/100 mL. In the same circumstances except that recreation is identified as a beneficial use, the Uniform Guidelines recommend a median coliform MPN not exceeding 2.2/100 mL. A 4 August 2006 DHS letter clarifies appropriate disinfection levels for discharges to Mill Creek based on identified downstream use patterns. The letter recommends disinfected secondary-23 recycled water as protective of known REC-1 intensity and AGR uses of Mill Creek, provided areas of public access are posted to discourage REC-1 uses and AGR uses are limited to fiber and fodder crops. In the event future information reveals significant REC-1 use of Mill Creek or that Mill Creek water is used to irrigate food crops, it would be appropriate to reopen this permit to require more stringent disinfection requirements based on DHS recommendations.

74. The Basin Plan includes a narrative water quality objective that requires that all surface waters be maintained free of toxic substances in toxic concentrations.

75. The Discharger uses chlorine for effluent disinfection and does not dechlorinate. The use of chlorine presents a reasonable potential that it could be discharged in toxic concentrations. Based on 40 CFR Section 122.44(d)(1)(vi), it is appropriate to use USEPA's Ambient Water Quality Criteria to determine the effluent limit necessary to implement the narrative toxicity water quality objective. In its *Ambient Water Quality Criteria for the Protection of Fresh Water Aquatic Life*, USEPA recommends that chlorine concentrations not exceed 0.019 mg/L as a 1-hour average and 0.011 mg/L as a 4-day average. As the Discharger currently does not have dechlorination equipment, a reasonable period to install the necessary dechlorination equipment is appropriate

76. The RWD indicates that the average effluent concentration for ammonia is 7.3 mg/l and the maximum effluent concentration is 8 mg/l. Given there is no dilution in Mill Creek, effluent containing these concentrations of ammonia when it comprises flow to Mill Creek will have the

reasonable potential to cause an exceedance of the Basin Plan water quality objective for ammonia which states, "In no case shall the discharge of wastes cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/l (as N) in receiving waters." It is appropriate to include an effluent limit for ammonia to implement the Basin Plan objective. As the discharge has not been previously regulated for ammonia, it is also appropriate to include in this permit an interim limit for ammonia and a schedule for the Discharger to comply. It is also appropriate to require the Discharger to investigate whether the Basin Plan objective is protective of aquatic species that inhabit or could inhabit Mill Creek. Provision H.11 requires the Discharger to conduct a study to determine appropriate effluent limits to protect WARM in Mill Creek.

77. Pursuant to CWC Section 13267, the Discharger was directed to implement the monitoring requirements of CTR by letter dated 27 February 2001. The letter directed the Discharger to analyze its discharge and the receiving water upstream of its discharge (1) quarterly for priority pollutants with the final sample to be collected in January 2002 and (2) semiannually for organo-phosphate pesticides in April and October 2001. The letter also directed the Discharger to conduct 2,3,7,8-TCDD and congeners monitoring twice annually (wet and dry season) for the next three years.

78. The Discharger has completed its quarterly priority pollutant monitoring pursuant to the Regional Water Board's letter dated 27 February 2001. Those pollutants detected in the Discharger's effluent (and the number of samples with detectable concentrations) include: chromium III (4), chromium VI (1), mercury (4), selenium (1), chloroform (4), toluene (2), bis(2-ethylhexyl)phthalate (1), and di-n-octyl phthalate (1). Table 5 of the attached Information Sheet presents the concentrations of these pollutants.

79. A Reasonable Potential Analysis (RPA) of the priority pollutant sampling results (as described in Finding No. 78) pursuant to the SIP, indicates that the discharge has a reasonable potential to cause or contribute to an excursion above a water quality standard for bis(2-ethylhexyl)phthlate. The RPA for bis(2-ethylhexyl)phthlate is included in the attached Information Sheet as Attachment A. However, Regional Water Board staff considers the RPA to be inadequate as explained below. Also, the RPA for lead is considered inadequate as also explained below.

Bis (2-ethylhexyl) phthlate. The Discharger has requested that this priority pollutant monitoring results submitted pursuant to Order No. 97-061 be considered in the RPA. The applicable Bis(2-ethylhexyl)phthlate WQC for Mill Creek is 5.9 µg/L based on human health protection (consumption of organisms only) as the beneficial uses of Mill Creek do not include municipal and domestic supply. Although an RPA is included in the Information Sheet, Attachment A, Worksheet 4, which determined that the discharge may cause or contribute to an exceedance of the WQC for this priority pollutant, it is deficient in two respects: 1) a sample concentration of 53 µg/L, a concentration almost six times more than the next highest concentration, with no explanation for this unusually high concentration (it could be a laboratory error); and 2) the reported detection limit for two of the 15 samples were higher than the WQC. The Regional Water Board staff considers the data to be insufficient to conduct an adequate RPA. The SIP provides that when data is unavailable or insufficient to conduct the RPA, the Regional Water Board shall require additional monitoring in place of water quality-based effluent limitation. Accordingly, this Order includes monitoring for Bis(2-ethylhexyl)phthlate with reported detection limit at the SIP

required minimum level for six months, to provide additional data for the Regional Water Board staff to conduct an adequate RPA and include water quality-based effluent limitations, if necessary, pursuant to Provision H.22.

Lead. Order No. 97-061 includes effluent limitations of a monthly average of 0.05 mg/L and a daily maximum of 0.1 mg/L. The Order does not explain the basis for the effluent limitations but, based on Regional Water Board staff's review of current water quality criteria for lead, it appears to be for human health protection (water and organisms consumption). The effluent limitations are consistent with the beneficial uses as determined by the Regional Water Board and described in Order No. 97-061, Finding No. 45, at the time of its adoption. This Order includes the designated beneficial use of WARM for Mill Creek. Water quality criteria to protect aquatic life are more stringent than the current limitations. Lead WQC vary with the hardness of the receiving water. Based on the current average hardness of the discharge of 100 mg/L (as $CaCO_3$), the WQC for lead are 3.2 µg/L for a criteria continuous concentration (CCC)(a four-day average) and 82 µg/L for a criteria maximum concentration (CMC)(a one-hour average) as total recoverable lead. Because the current permit includes lead effluent limitation and monitoring requirement, Regional Water Board staff considered including the lead monitoring data submitted pursuant to the current permit in conducting the RPA. This additional data should provide a more accurate RPA result. The Regional Water Board staff reviewed the lead test results for the last two years (2004 and 2005). All lead sample results submitted pursuant to Order No. 97-061 have been reported as "less than 0.005 mg/L," and reporting detection limit of 0.005 mg/L. The reported detection limit does not meet the SIP required minimum level of 0.5 µg/L. Staff considers the latter data to be inadequate. Although the RPA of the lead sample results submitted pursuant to the Regional Water Board's Section 13267 letter dated 27 February 2001 did not cause a reasonable potential (Information Sheet, Attachment A, Worksheet 1), when including all lead sample results the RPA is an inadequate RPA. Staff considers the latter case to be more appropriate of the two RPAs. As indicated above, the SIP requires additional monitoring be conducted to obtain sufficient data to conduct an adequate RPA. Accordingly, this Order requires the Discharger to monitor the discharge for lead with SIP minimum level detection limit, at the same frequency as Order No. 97-061 for six months, to provide additional data for the Regional Water Board staff to conduct an adequate RPA and include lead effluent limitations, if necessary, pursuant to Provision H.22. However, the effluent limitation from the previous Order is continued in this Order to comply with the anti-backsliding provisions of 40 CFR 122.44(l)

80. The Discharger's priority pollutant monitoring detected selenium in one of the four samples at a concentration of 3.0 µg/L. The remaining sample results did not indicate selenium concentrations above the analytical detection limit of 2 µg/L. The U.S. Fish and Wildlife Service (USFWS) established a wildlife impact selenium threshold level of 2 µg/L. The Basin Plan indicates that evaporation basins containing selenium concentrations greater than 2.7 µg/L have potential for reduced hatchability and teratogenic impacts on waterfowl. Since the District diverts the flows in Mill Creek to its percolation basins, selenium in the effluent is a potential concern. The Order's Monitoring and Reporting Program requires the Discharger to monitor effluent selenium concentrations. Provision H.22 provides for reopening for consideration of addition of an effluent limitation for selenium, or a requirement for the Discharger to conduct a hazing program in consultation with USFWS.

DEGRADATION AND SURFACE WATER AND GROUNDWATER LIMITATIONS

81. State Water Board Resolution No. 68-16 requires that discharge of waste maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the water quality policies (i.e., quality that exceeds water quality objectives). The discharge must be subject to requirements that will result in best practicable treatment or control.

82. Domestic wastewater contains constituents such as oxygen demanding substances (i.e., BOD_5), salinity constituents, pathogens, nutrients (e.g., nitrate), organics, and metals. Even though nearly all WWTF effluent is discharged to Mill Creek, the effluent in Mill Creek can be diverted to four percolation ponds owned by the City and operated by the Kaweah Delta Water Conservation District. Impacts on area groundwater from percolating effluent discharged to Mill Creek could result in a statistically significant increase in waste constituents over natural regional background. Any increase in the concentration of these constituents in groundwater must be consistent with the antidegradation provisions of Resolution 68-16.

83. Monitoring data from wells MW-H1 and MW-L at nearby dairies indicate that groundwater passing under dairies and dairy wastewater application areas is degraded for salinity and nitrate.

84. The total nitrogen concentration of the discharge exceeds 10 mg/L. Without adequate attenuation in the soil profile, the percolation of effluent discharged to Mill Creek could cause or contribute to groundwater containing nitrate (as N) in concentrations exceeding 10 mg/L, thereby impairing its use as a domestic supply and as a potential municipal supply.

85. Excessive residual organic carbon in leachate percolating to groundwater from the WWTF's unlined sludge handling facilities may result in prolonged periods of oxygen deficiency in groundwater. If leachate percolating to and mixing with groundwater contains more organic carbon than can be oxidized by microorganisms respiring on the residual oxygen in the leachate and available in the soil column, the soil and groundwater beneath the sludge handling facilities will likely become anoxic. Further microbial decomposition of organic carbon in groundwater causes nitrate and oxidized forms of manganese and iron to substitute for oxygen as a terminal electron acceptor, reducing nitrate to nitrogen and transforming manganese and iron to more water-soluble reduced forms. Where groundwater underlying the sludge drying beds contains dissolved manganese and iron in elevated concentrations, it likely indicates organic overloading.

86. The WWTF described in Finding Nos. 3 and 4 provides treatment and control of the discharge that incorporates:

- technology for secondary treatment of municipal wastewater
- mechanical dewatering of debris at the headworks
- biosolids handling and treatment for reuse
- effluent disinfection
- concrete treatment structures
- pretreatment permits for significant industrial users

- a capital recovery fund
- an up to-date operation and maintenance (O&M) manual
- staffing to assure proper operation and maintenance

87. Certain aspects of the Discharger's waste treatment and control practices have not been and are unlikely to be justified as BPTC. Deficiencies in treatment and control that cause or contribute to exceedances of Basin Plan water quality objectives subject the Discharger to enforcement. The discharge is causing chlorine toxicity in the receiving water due to the Discharger's lack of dechlorination facilities. The discharge may be causing ammonia toxicity due to the Discharger's lack of nitrification treatment. Possible sources of significant nitrate degradation include the WWTF's unlined sludge handling facilities and the Discharger's past practice of discharging grease-trap waste to dry disposal ponds.

88. During a 27 July 2006 meeting with Regional Water Board staff, the Discharger expressed its intent to complete a facilities plan to examine, among others, the following issues:

    a. Cessation of discharge to Mill Creek

    b. Revisions to its sludge treatment and handling facilities

    c. The need for effluent nitrification/denitrification.

89. Temporary dechlorination facilities can be installed relatively quickly at relatively low cost.

90. Resolution of remaining BPTC issues described in Finding 87 will likely require substantial planning, investigation, capital, and operation and maintenance costs. It is therefore appropriate to provide the Discharger reasonable time to complete a facilities plan and to achieve compliance. Provision H.11 provides the Discharger with a schedule to address the issues in Finding 87.

91. Finding 37 does not represent a definitive inventory of crops that are or could be grown in the area potentially affected by the discharge. Based on climate, soil type, and natural background water quality, other crops sensitive to salt and boron might be capable of being grown in the area, and changing market conditions could drive a change in cropping patterns. Changing patterns that include salt-sensitive crops (e.g., beans, carrots, onions, almonds, strawberries, clover, plums and grapes*)* would require a greater protection than crops already identified. The City has not provided a detailed assessment of uses of surface and groundwater within the area potentially affected by the discharge. It is appropriate to require the City to provide such an assessment.

92. It is reasonable and appropriate to require the Discharger to assemble the technical information necessary for this Regional Water Board to determine the area potentially affected by the discharge, the controlling beneficial uses of water impacted by discharges, and to derive appropriate numerical groundwater quality objectives for the WWTF that are consistent with the Basin Plan. Provision No. H.13 requires the Discharger to conduct studies to:

    a. Determine the spatial extent of groundwater affected by the discharge and the spatial extent of groundwater that could be affected by the discharge.

b. Determine the types of crops that are, and could potentially be, grown, and any other potential beneficial uses of surface and groundwater that could be affected by the discharge.

c. Evaluate and propose for Regional Water Board evaluation and consideration with supporting documentation and in conformance with the Basin Plan, appropriate numeric limitations for groundwater that could be affected by the WWTF discharge.

93. Following the completion of the studies required by Provision H.13, this Order will be reopened to consider final numerical groundwater limitations.

94. Until the work required by Provision H.13 is completed by the Discharger and reviewed by the Regional Water Board, it is reasonable to employ, where numeric water quality objectives do not exist, narrative groundwater quality limitations that proscribe the discharge from causing or contributing to adverse affects on any beneficial use of groundwater within the area potentially impacted by the discharge. These interim groundwater limitations are thus protective of present and anticipated beneficial uses.

OTHER REGULATORY CONSIDERATIONS

95. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), in accordance with CWC Section 13389.

In October of 1992, the Discharger certified a final Environmental Impact Report in accordance with the California Enviornmental Qaulity Act (Public Resources Code Section 21000, et seq.) for 20 mgd. Compliance with this Order will mitigate any impacts on water quality resulting from the increase in discharge to 20 mgd as the Prohibitions, Limitations, Specifications, and Provisions herein require any resulting impacts to be consistent with State water quality policies.

96. CWC Section 13241 requires the Regional Water Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. CWC Section 13263 requires regional water boards to address the factors in Section 13241 in adopting waste discharge requirements. The State Water Board, however, has held that a regional water board need not specifically address the Section 13241 factors when implementing existing water quality objectives in waste discharge requirements because the factors were already considered in adopting water quality objectives. As these waste discharge requirements implement nothing more stringent than adopted water quality objectives, no additional analysis of the section 13241 factors is required.

97. The State Water Board adopted the General Industrial Activities Storm Water Permit (General Permit) on 19 November 1991, and amended it on 17 September 1992 and 17 April 1997. The General Permit prescribes waste discharge requirements for discharges of storm water associated with industrial activities, excluding construction activities, and requires submittal of a Notice of Intent by industries to be covered under the permit. The Discharger is not required to obtain coverage under the General Permit because all storm water runoff within the WWTF property is

diverted back to the headworks of the WWTF, and does not discharge separately to a water of the United States.

98. The State Water Board adopted the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order No. 2006-0003-DWQ) on 2 May 2006. The General Order prescribes waste discharge requirements for discharges from sanitary sewer systems greater than one mile in length that convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California. The Discharger is required to obtain coverage under General Order No. 2006-0003-DWQ.

99. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, CCR, Section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Section 20090(a) of Title 27, is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;

    b. The waste discharge requirements are consistent with water quality objectives; and

    c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

    d. The treatment and storage facilities are not being used for disposal.

100. The discharges authorized herein are consistent with Resolution 68-16:

    a. The City of Visalia certified an Environmental Impact Report for the expansion of the WWTF and the increase in discharge flows to 20 mgd. The EIR finds that expansion of the WWTF is necessary to accommodate increased housing and economic growth in the Visalia area.

    b. Some degradation of groundwater by the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control and consistent with "d" is consistent with maximum benefit to the people of California. The permit requires this level of treatment and control, including a schedule to achieve best practical treatment and control where deficiencies have been identified.

    c. Expanded sewerage service to address growth in lieu of expansion of individual and small wastewater systems minimizes water quality impacts, provides economy of scale, and creates opportunities to recycle wastewater, all of which benefit the people of the State.

    d. This Order contains effluent limitations, discharge specifications and receiving water limitations that implement Basin Plan.

    e. This Order requires studies to identify appropriate numeric groundwater limitations consistent with d.

f. While this Order allows an increase in the Discharge mass of pollutants to Mill Creek, requirements are not dependent upon assimilative capacity in the receiving water. The effluent concentration limits are as stringent as, or in some cases more stringent than, those in WDRs Order no. 97-061 previously found to be consistent with water quality policies.

GENERAL FINDINGS

101. Pursuant CWC Section 13263(g) discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

102. Section 13267 of the CWC states, in part, that:

> In conducting an investigation specified in [Section 13267] subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence the supports requiring that person to provide the reports.

103. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2006-0091 are necessary to determine compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

104. Information in the attached Information Sheet was considered in developing findings, terms, and conditions of this Order and is part of this Order.

105. The Discharger and interested agencies and persons were notified of the intent to prescribe waste discharge requirements for this discharge and provided them an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

106. All comments pertaining to the discharge were heard and considered in a public meeting.

107. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided USEPA has no objections. If USEPA objects to the NPDES aspects of this permit, the objection will not affect other aspects of this Order.

IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. 97-061 is rescinded and that, pursuant to CWC Sections 13263, 13267, 13377, and 13383, the City of Visalia, its agents, successors and

assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, shall comply with the following at its wastewater treatment facility:

A. Discharge Prohibitions

1. Discharge of pollutants at a location or in a manner different from that described in Finding No. 2 is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13.

3. Discharge of waste classified as 'hazardous' as defined in Section 2521(a) of Title 23, CCR, Section 2510 et seq., is prohibited.

4. Discharge of waste classified as 'designated' as defined in CWC Section 13173, including untreated grease trap waste, except as allowed by separate Regional Water Board-adopted waste discharge requirements, is prohibited.

5. Direct reuse of effluent to areas lacking either water recycling requirements or waiver of said requirements is prohibited.

B. Effluent Limitations

1. The monthly average daily discharge flow shall not exceed 20 mgd.

2. Discharge 001 (Mill Creek) shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	7-sample Median	Daily Maximum
BOD_5	mg/L	30	45	--	90
	lbs/day	5,004[1]	7,506[1]	--	15,012[1]
Total Suspended Solids	mg/L	30	45	--	90
	lbs/day	5,004[1]	7,506[1]	--	15,012[1]
Oil and Grease	mg/L	10	--	--	15
	lbs/day	1,668[1]	--	--	2,502[1]
Settleable Solids	mL/L	0.2	--	--	0.5
Chlorides	mg/L	--	--	--	175
Lead	mg/L	0.05	--	--	0.1
Chlorine Residual	mg/L	0.01[2]	--	--	0.02[2]
Total Coliform Organisms	MPN[3]/ 100 mL	--	--	23	240[4]
		--	--	--	500[5]
Ammonia (as N)	mg/L	--	--	--	0.025[6]

[1] Value based upon a design capacity of 20.0 mgd (*x* mg/L * 8.34 * 20 mgd = *z* lbs/day), where *x* is the maximum concentration allowable.

[2] Effective **26 March 2007.**

[3] Most probable number.

[4] This concentration shall not be exceeded in more than one sample in any 30-day period.

[5] No sample shall exceed this concentration.

[6] Effective upon compliance with Provision No. H.11.g and no later than 4.5 years following adoption of this Order. In the interim, the Daily Maximum effluent concentration shall not exceed 25 mg/L.

3. Discharges 002 (Use Area) and 003 (onsite disposal ponds) shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	7-sample Median	Daily Maximum
BOD_5	mg/L	30	45	--	90
Total Suspended Solids	mg/L	30	45	--	90
Settleable Solids	mL/L	0.2	--	--	0.5
Chlorides	mg/L	--	--	--	175
Total Coliform Organisms[1]	MPN/100 mL	--	--	2.2	23[2]
		--	--	--	240[3]

[1] Applies to Discharge 002 (to Use Area) when recycled water is applied to the walnut orchard. If recycled water is applied to fiber and fodder crops within the Use Area, no disinfection is required. Does not apply to Discharge 003 (onsite disposal ponds).

[2] This concentration shall not be exceeded in more than one sample in any 30-day period.

[3] No sample shall exceed this concentration.

4. The arithmetic mean of BOD_5 and of total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal), or a maximum of 30 mg/L, whichever is less.

5. Discharge 002 and Discharge 003 shall not have a pH less than 6.0 or greater than 9.0. Discharge 001 shall not have a pH less than 6.5 or greater than 8.3.

6. **Effective 25 March 2011**, survival of aquatic organisms in 96-hour bioassays of undiluted effluent to Discharge 001 shall be no less than:

   a. Minimum for any one bioassay----------70%

   b. Median for any three or more consecutive bioassays ----------90%

7. The EC of the discharge shall not exceed the flow-weighted average EC of the source water plus 500 µmhos/cm, or a total of 1,000 µmhos/cm, whichever is more stringent. The flow-weighted average for the source water shall be based on the local private water supplier's annual State reporting.

8. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.

C. Sludge Specifications

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant operation.

2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations.

3. Any storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary (no more than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations.

4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, WWTF, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. In most cases, this will mean General Biosolids Order (State Water Board Order No. 2004-0012-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*). For a biosolids use project to be covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

6. Use and disposal of biosolids should comply with the self-implementing federal regulations of Title 40 CFR Part 503, which are subject to enforcement by the USEPA, not the Regional Water Board. If during the life of this Order the State accepts primacy for implementation of 40 CFR 503, the Regional Water Board may also initiate enforcement where appropriate.

D. Receiving Water Limitations

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in the receiving surface water (i.e., Mill Creek):

1. Concentrations of dissolved oxygen to fall below 5.0 mg/L.

2. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the water surface or on objects in the water, or otherwise adversely affect beneficial uses.

3. Oils, greases, waxes, floating materials (liquids, solids, foams, and scums) or suspended material that create a nuisance or otherwise adversely affect beneficial uses.

4. **Effective 26 March 2007** chlorine to be detected in concentrations above the limit of detection in test procedures specified in 40 CFR Part 136, Table IB. The SWRCB is currently considering adoption of a Chlorine Policy (Policy). If the Policy is adopted by SWRCB and approved by OAL and EPA, the permit may be reopened to implement the Policy.

5. Pesticides or combinations of pesticides to be detected in concentrations that adversely affect beneficial uses.

6. Discoloration that creates nuisance or adversely affects beneficial uses.

7. Biostimulatory substances in concentrations that promote aquatic growths to the extent that they create nuisance or adversely affect beneficial uses.

8. Deposition of material that causes nuisance or adversely affects beneficial uses.

9. The normal ambient pH to fall below 6.5, exceed 8.3, or change by more than 0.3 units.

10. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

11. Turbidity at levels that cause nuisance or adversely affect beneficial uses. The increase in turbidity to be:

    a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.

    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

12. The ambient temperature to increase more than 5 ^{o}F or to be altered to a degree that adversely affects beneficial uses.

13. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in Title 22, CCR; that are deleterious to human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

14. Toxic pollutants to be present in the water column in concentrations that adversely affect beneficial uses or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

15. Taste- or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or impart undesirable tastes or odors to edible products of aquatic origin or to domestic or municipal water supplies.

16. Violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board, the State Water Board or USEPA (e.g., CTR and National Toxics Rule) pursuant to the CWA and regulations adopted thereunder.

E. Groundwater Limitations

Release of waste constituents from any storage, treatment, recycling, or disposal component associated with the WWTF shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTF and discharge area(s) to contain waste constituents in concentrations equal to or greater than that listed below:

1. Total coliform organisms of 2.2 MPN/100 mL.

2. Chemical constituents in concentrations that adversely affect beneficial uses, such as nitrate-nitrogen of 10 mg/L.

3. Toxic constituents in concentrations that produce detrimental physiological responses in human, plant or animal life.

4. Radionuclides in concentrations deleterious to human, plant, animal, or aquatic life or in concentrations that result in accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

F. Pretreatment Requirements

1. The Discharger shall implement and enforce its approved Pretreatment Program which is hereby made an enforceable condition of these requirements. The Discharger shall comply with all pretreatment requirements contained in 40 CFR 403 and shall be subject to enforcement actions, penalties, fines, and other remedies by USEPA or other appropriate parties, as provided in the CWA, as amended. USEPA or Regional Water Board may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the CWA.

2. The Discharger shall perform the pretreatment functions required in 40 CFR Part 403. Noncompliance shall subject the Discharger to enforcement actions, penalties, fines, and other remedies by the USEPA, Regional Water Board, or other appropriate parties, as provided in the CWA, as amended. These pretreatment functions include, but are not limited to:

   a. Implementing the necessary legal authorities as provided in 40 CFR 403.8(f)(1);

   b. Enforcing the pretreatment requirements under 40 CFR 403.5 and 403.6;

   c. Implementing the programmatic functions provided in 40 CFR 403.8(f)(2);

   d. Providing the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and

   e. Publishing a list of industrial users which were in significant noncompliance and applicable pretreatment requirements as required by 40 CFR 403.8(f)(2)(vii).

   f. Conducting inspections in accordance with provisions of 40 CFR 403.8(f)(1)(v) and 403.8(f)(2)(v) and ensure compliance with pretreatment standards and requirements by (1) assessing and collecting, when appropriate, civil penalties and civil administrative penalties in accordance with Government Code Sections 54740, 54740.5, and 54740.6, or (2) other equally effective means.

3. The Discharger shall enforce the requirements promulgated under CWA Section 307(b), (c), and (d) and Section 402(b). The Discharger shall cause industrial users subject to federal categorical standards to achieve compliance no later than that date specified in those requirements, or in the case of a new industrial user, upon commencement of the discharge.

G. Recycled Water Specifications

The following specifications apply to recycled water and its application in the 900-acre Use Area (Discharge 002) described in Finding No. 1.

1. Use of recycled water shall comply with all the terms and conditions of the most current Title 22 provisions.

2. All areas with recycled water shall have appropriate backflow protection for potable water supplies as specified in Title 17, CCR, Section 7604, or as specified by DHS.

3. Recycled water shall remain within the permitted Use Area.

4. Use of recycled water on walnuts shall comply with the following conditions:

   a. The most probable number (MPN) of total coliform bacteria in recycled water shall not exceed a median of 2.2 per 100 mL utilizing the bacteriological results of the last seven days for which analyses have been completed, the MPN of total coliform bacteria shall not exceed 23 per 100 mL in more than one sample in any 30-day period, and the MPN of total coliform bacteria shall not exceed 240 per 100 mL in any sample;

   b. The recycled wastewater shall be disinfected by a chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow.

   c. Samples of recycled water for bacteria analysis shall be collected at the WWTF discharge point (Discharge 002);

   d. Recycled water shall not be applied to the Use Area within 30 days of crop harvest;

   e. Recipients or buyers of walnuts shall be informed that the walnuts may possibly contain sewage-borne organisms on the hulls, that they must be handled in a good hygienic manner that will prevent contamination of shells when the hulls are removed, and must be cleaned by a procedure that will meet the California Food Sanitation Act (Health and Safety Code, Division 22, Chapter 7) if offered for human consumption.

5. In the event the crop grown in the Use Area changes, the Discharger shall notify the Regional Water Board and limit the crops to those consistent with Title 22 regulations for use of recycled water. Provision H.19 allows this Order to be reopened and revised if the crop grown in the Use Area changes from walnuts.

6. Application of wastewater, biosolids, and commercial fertilizer to the Use Area shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management system. The annual nutrient loading of the Use Area, including the nutritive value of organic and chemical fertilizers and of the recycled water shall not exceed the crop demand.

7. The following setback distances from areas irrigated with recycled water shall be maintained:

Setback Distance (feet)	To
25	Property Line
30	Public Roads
50	Drainage Courses
100	Domestic and Irrigation Wells

8. The perimeter of the Use Area shall be graded to prevent ponding along public roads or other public areas.

9. Areas irrigated with recycled water shall be managed to prevent breeding of mosquitoes. More specifically:

   a. All applied irrigation water must infiltrate completely within a 48-hour period.

   b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.

   c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.

10. Recycled water shall be managed to minimize runoff onto adjacent properties not owned or controlled by the Discharger.

11. Recycled water used for irrigation shall be managed to minimize erosion.

12. Recycled water shall be managed to minimize contact with workers.

13. If recycled water is used for construction purposes, it shall comply with the Regional Water Board's most current edition of *Guidelines for Use of Recycled Water for Construction Purposes*. Other uses of recycled water not specifically authorized herein shall be subject to the approval of the Executive Officer and shall comply with Title 22.

14. Public contact with recycled water shall be precluded through such means as fences and signs, or acceptable alternatives. Signs with proper wording (shown below) of a size no less than four inches high by eight inches wide shall be placed at all areas of public access and around the perimeter of all areas used for effluent disposal or conveyance to alert the public of the use of recycled water. All signs shall present the international symbol similar to that shown in Attachment C and present the following wording:

RECYCLED WATER - DO NOT DRINK

AGUA DE DESPERDICIO RECLAMADA - POR FAVOR NO TOME

H. Provisions

1. The Discharger shall comply with all the items of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)*, dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as *Standard Provision(s)*.

2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R-2006-0091, which is a part of this Order, and any revisions thereto as ordered by the Regional Water Board. When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports (DMR). If the Discharger wishes to submit a single report to satisfy the request for the DMR and comply with the MRP, the submittal date shall be no later than the submittal date specified in the MRP for the report.

3. The Discharger shall keep a copy of this Order, including its MRP, attachments and Standard Provisions, at the WWTF for reference by operating personnel. Key operating personnel shall be familiar with its contents.

4. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, Sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

5. The Discharger shall conduct the chronic toxicity testing as specified in MRP No. R-2006-0091. If the testing indicates that the discharge causes, contributes to, or has the reasonable potential to cause or contribute to an in-stream excursion above a water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and upon Executive Officer approval conduct the TRE. If necessary, this Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be opened to include an effluent limitation based on that objective.

6. **By 26 December 2006**, the Discharger shall submit a map depicting the locations of all signs posted in accordance with Recycled Water Specification G.14.

7. **By 26 December 2006,** the Discharger shall submit a technical report in the form of a work plan and proposed implementatioin schedule describing methodologies

that it intends to employ to discourage REC-1 uses of the water in Mill Creek down stream of the discharge. The work plan and schedule are subject to Executive Officer approval.

8. **By 26 March 2007,** the Discharger shall submit a technical report that contains a characterization of the discharge for appropriate constituents identified in Title 22 (as described in Finding No. 61). The report shall describe the sampling program utilized to characterize the discharge and the technical justification for selecting tested Title 22 constituents as being appropriate for the discharge. The report shall be subject to the requirements of Provision H.4 and is subject to Executive Officer written approval.

9. **By 26 March 2007,** the Discharger shall submit a technical report describing a Use Area management plan that ensures wastewater and commercial fertilizer will be applied to the Use Area as defined herein in accordance with this Order's recycling specifications and at reasonable agronomic rates considering the crop, soil, climate, and irrigation management system. The technical report shall (a) describe what measures the Discharger has implemented or proposes to implement to ensure consistent compliance with Recycled Water Specification G.4.a; (b) describe the types of crops to be grown and harvested annually, crop water use, nitrogen uptake, and supporting data and calculations for monthly water and yearly nutrient balances; (c) describe the wastewater constituent concentration effect resulting from irrigation; (d) include a map showing locations of all domestic and irrigation wells that are within and near the Use Area, areas of public access, location and wording of public warning signs and setback distances from irrigation/domestic wells, property boundaries, and roads; (e) shall be subject to the requirements of Provision H.4; and (f) subject to Executive Officer written approval.

10. **Interim Dechlorination Implementation. By 26 March 2007** the Discharger shall install the necessary interim facilities to dechlorinate WWTF effluent to comply with the residual chlorine limits in Effluent Limitation B.2 and Receiving Water Limitation D.4. **By 25 June 2007**, the Discharger shall submit to the Regional Water Board a technical report that describes the installation and includes performance testing results.

11. The Discharger shall prepare and submit a Facilities Management Plan that:

    a. Presents the results of a technical evaluation of the WWTF's nitrogen control systems and grease and sludge handling practices, treatment units, storage units, and disposal units, to determine changes necessary to achieve BPTC, as required by Resolution 68-16. Following completion of the evaluation, the Discharger shall submit a technical report describing recommendations for necessary modifications to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable. The technical report shall include specific methods the Discharger proposes as a means to measure processes and assure continuous optimal performance of BPTC measures.

b. Presents the City's decision to continue or to cease discharge to Mill Creek. If the City decides to cease discharge to Mill Creek, it shall submit a work plan and proposed implementation schedule for terminating discharge to the Creek. If the City decides to continue discharge to Mill Creek it shall provide work plans and proposed time schedules for:

   i. **Dechlorination Implementation.** The Discharger shall submit a technical report describing a work plan and implementation schedule to install the necessary facilities to sufficiently dechlorinate WWTF and monitor the effluent for compliance residual chlorine limits in Effluent Limitation B.2 and Receiving Water Limitation D.4. Once the system is operational, the Discharger shall submit to the Regional Water Board a technical report that describes the installation and includes performance testing results.

   ii. **Ammonia Effluent Limitation Evaluation.** The Discharger shall submit a technical report consisting of a work plan and implementation schedule that proposes methods that will be employed to comply with Effluent Limitation B.2 for ammonia. The work plan shall also provide for a study and schedule for determining appropriate ammonia effluent limitations protective of the beneficial use of Mill Creek as warm freshwater habitat considering the ammonia toxicity to the various aquatic habitat species currently supported by or potentially supported by Mill Creek flows. A professional biologist familiar with aquatic habitat and ammonia toxicity shall conduct the evaluation. Results of the evaluation should propose technically justified monthly average and daily maximum ammonia effluent limitations that are protective of Mill Creek aquatic habitat and is no greater than the Basin Plan objective of 0.25 mg/l. Following completion of this evaluation, this permit may be reopened to include modified effluent limits for ammonia.

   iii. **Beneficial Use Evaluation.** The Discharger shall submit a technical report containing results of an evaluation of existing and potential REC1 and AGR uses of water in and from Mill Creek, as well as the level of disinfection necessary to ensure their full protection and a proposed schedule for implementing it if it is decided to continue to discharge to Mill Creek.

The Discharger shall comply with the following compliance schedule in performing the above described tasks:

	Task	Compliance Date
a.	Submit proposed scope of work for completing facilities plan.	**27 November 2006**
b.	Submit status report.	**26 March 2007**

	Task	Compliance Date
c.	Submit the results of facilities plan that includes a complete evaluation of existing and potential REC1 and AGR uses of Mill Creek waters and work plans and proposed BPTC implementation schedules and either (1) a work plan and schedule to cease discharge to Mill Creek or (2) work plans and proposed schedules to implement a level of disinfection fully protective of all REC1 and AGR uses of Mill Creek, to implement permanent dechlorination , to meet Effluent Limitations B.2 for ammonia, determine appropriate ammonia limits for Mill Creek , and if necessary, to implement WWTF modifications to meet ammonia limits specific to Mill Creek. The work plan for achieving BPTC shall include provisions for producing a sludge management plan that satisfies the information requirements of Attachment F *Information Needs for Sludge Management Plan* and describes facilities that will be constructed to ensure to comply with Effluent Limitation B.8, Sludge Specifications C.2 and C.3, and Provision H.20.	**25 September 2007**
d.	Implement work plans.	**30 days following Executive Officer approval of implementation schedules in Task c.**
e.	Submit status report.	**25 September 2008**
f.	Complete WWTF modifications necessary to meet BPTC.	**25 March 2011**
g.	Cease discharge to Mill Creek or provide disinfection to levels appropriate for the full protection of REC1 and AGR uses, complete permanent dechlorination and effluent monitoring to demonstrate compliance with Effluent Limitations B.2 for chlorine and complete WWTF modifications necessary to meet Effluent Limitations B.2 for ammonia and any more stringent ammonia limits as determined by the Ammonia Limitation Evaluation.	**25 March 2011**

Task	Compliance Date
h. Submit written certification certifying that WWTF modifications have been completed as designed and are capable of fully complying with the terms and conditions of this Order.	**25 April 2011**

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision H.4 and are subject to Executive Officer written approval.

12. **Modifications to Groundwater Monitoring Network.** The Discharger shall submit a technical report evaluating the existing groundwater monitoring well network and describing proposed modifications to the groundwater monitoring well network based upon the evaluation. The technical report shall consist of a monitoring well installation work plan that satisfies Attachment G, *Standard Monitoring Well Provisions for Waste Discharge Requirements*. The network shall include one or more background monitoring wells and sufficient number of designated monitoring wells to evaluate the extent to which, if any, WWTF facilities (including unlined sludge pits and beds) and the percolation of effluent discharged to Mill Creek have degraded or threaten to degrade groundwater. These include, at a minimum, monitoring wells immediately downgradient of the unlined sludge handling facilities and one well in the vicinity of the percolation ponds. Monitoring wells should also be placed near other WWTF facilities having potential for impacting groundwater (i.e., dried sludge storage area), with the exception of the wastewater Use Area to which the Discharger applies effluent at reasonable agronomic rates.

The design, construction and destruction of wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC Section 13801. The Discharger shall install approved monitoring wells and commence groundwater monitoring in accord with the MRP. After the first sampling event, the Discharger shall report on its sampling protocol as specified in the MRP. After one year of monitoring, the Discharger shall characterize natural background quality of monitored constituents in a technical report. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

Task	Compliance Date
a. Submit technical report: evaluation of existing groundwater monitoring well network and additional monitoring well installation work plan	**26 February 2007**

	Task	Compliance Date
b.	Implement monitoring well installation and destruction work plan and commence groundwater monitoring pursuant to MRP	**180 days** following EO written approval of task a
c.	Submit technical report: monitoring well installation, development, and sampling protocol and results, and well destruction details	**90 days** following completion of task b
d.	Report on monthly and quarterly sampling pursuant to the MRP	1st day of the second month following prescribed sample collection
e.	Submit technical report: natural background quality	**120 days** following completion of 4th quarterly sampling

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision H.4 and are subject to Executive Officer approval.

13. **Land Use and Groundwater Limitations Study.** The Discharger shall submit a technical report in the form of a work plan and proposed schedule to complete studies to compile sufficient technical data to better characterize the uses of waters in Mill Creek and groundwater and to derive appropriate groundwater limitations for the area affected, and potentially affected, by the WWTF discharges. Studies must be designed to:

    a. Determine the spatial extent of groundwater affected by, and that could be affected by, the discharge.

    b. Determine the types of crops that are, and could potentially be, grown, and any other potential beneficial uses of surface and groundwater, that could be affected by the discharge.

    c. Evaluate and propose for Regional Water Board evaluation and consideration, with supporting documentation, appropriate numeric groundwater quality objectives for groundwater that could be affected by the WWTF discharge.

    Study results must be compiled into a final technical report. The final technical report shall propose for Regional Board consideration specific numeric groundwater limitations for each waste constituent that comply with the most stringent applicable water quality objectives for that waste constituent. The most stringent applicable water quality objective shall be interpreted based on the Regional Water Board policy entitled "Application of Water Quality Objectives" on pages IV-21 through IV-23 of the Basin Plan. If the Discharger wishes the Regional Water Board to consider a proposed water quality limitation that is less stringent than the most stringent water quality objective necessary to protect the most sensitive beneficial use,

it must provide documentation necessary to support the proposed limitation. For example, where the stringency of a proposed water quality objective can vary according to land use and other factors, the Discharger must provide documentation that a less stringent but attainable water quality objective is protective of all existing and probable beneficial uses. This documentation must be from public agencies and organizations with appropriate expertise and authority relative to the uses potentially affected by the less stringent objective, or the water quality necessary to sustain the uses. The Discharger should submit results of a validated groundwater model or other hydrogeologic information to support its proposal. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

	Task	Compliance Date
a.	Submit technical report: work plan and schedule	**26 December 2006**
b.	Commence studies	**30 days** following Executive Officer approval of Task a
c.	Complete studies	As established by Task a or 2 years following Task b, whichever is sooner
d.	Submit technical report summarizing results of studies and proposing for Regional Water Board consideration appropriate numeric groundwater limitations.	**60 days** following completion of Task c, or **25 September 2009**, whichever is sooner
e.	Include in its annual report (described in the MRP) a description of the overall status of the studies.	Annually on **1 February** following completion of Task b

Where appropriate, the technical report may incorporate relevant information resulting from the information required by Provisions H.8, H.9, H.10, H.11, H.12 above.

Technical reports submitted pursuant to this Provision shall be prepared in accordance with Provision I. 4 and are subject to Executive Officer approval as to adequacy.

14. Upon completion of tasks set forth in Provisions H.11, H.12, and H.13 above, the Regional Water Board shall reopen and revise this Order to contain conditions designed to assure full implementation of BPTC and compliance with the maximum permissible groundwater limitations consistent with Resolution 68-16.

15. The Discharger shall comply with the following time schedule to assure compliance with the monitoring requirements of Monitoring and Reporting Program No. R5-2006-0091.

	Task	Compliance Date
a.	Submit a work plan and time schedule for installation of continuous flow and chlorine residual meters and composite samplers required by this Order.	**25 September 2007**
b.	Begin installation of continuous flow and chlorine residual meters and composite samplers.	**60 days** following EO written approval of task a
c.	Full compliance with the terms of monitoring and reporting specified by this Order.	**25 September 2009**

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision H.4 and are subject to Executive Officer written approval. The Discharger shall submit to the Regional Water Board on or before the compliance due date a written report detailing compliance or non-compliance with the specified date and task. If non-compliance is being reported, the reasons for such non-compliance shall be stated, along with an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the time schedule.

16. **Pretreatment Program:** The Discharger shall implement and enforce its Pretreatment Program. To satisfy this Provision, the Discharger shall comply with the following time schedule:

	Task	Compliance Date
a.	Submit revised District Sewer Ordinance	**26 February 2007**
b.	Submit revised or new multijurisdictional agreement between the City and the District	**26 February 2007**

17. Upon completion of tasks set forth in Provision H.16, this Order shall be reopened for reconsideration of the modifications to the Industrial Pretreatment Program.

18. The Discharger shall implement water recycling whenever and wherever a reasonable opportunity arises to supply recycled water in place of or as a supplement to use of fresh water or better quality water, as for irrigation of commercial crops. This condition of discharge shall be self-implementing and subject to enforcement only if the Discharger cannot demonstrate to the satisfaction of the Regional Water Board that the exception was a

recycling project not of maximum benefit to the people of the State. Whenever the Discharger requests an increase in discharge flow beyond the maximum permitted value of 22 mgd, it shall also submit a written technical report for accountability of compliance with this Provision.

19. If the crop grown in the Use Area is changed from walnuts, this Order may be reopened to reconsider the Recycled Water Specifications and assure compliance with Title 22 recycled water regulations.

20. The Discharger shall implement best practicable treatment and control of the discharge, including optimal operation and maintenance, to comply with this Order.

21. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

22. If the Regional Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be enforced or, alternately, reopened for consideration of addition or revision of appropriate numerical effluent limitations for the problem constituents. The Regional Water Board may consider inclusion of a compliance time schedule within the bounds of the applicable regulations if the Discharger is not able to meet a new discharge requirement immediately.

23. If use patterns in and of Mill Creek cause DHS to recommend more stringent disinfection requirements as necessary to protect the beneficial uses of Mill Creek, this Order may be reopened to consider adding such requirements.

24. The Discharger shall submit to the Regional Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the time schedule.

25. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order. CWC Section 13385(i) requires the Regional Water Board to issue mandatory minimum penalties for certain effluent limitation violations.

26. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Board (Division of Water Rights).

27. This Order may be reopened to address conditions that necessitate a major modification of a permit as described in 40 CFR 122.62, which include the following:

    a. When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision. Therefore, if more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Federal Water Pollution Control Act or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

    b. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

28. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

    To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

29. The conditions of this Order that pertain to surface water discharge, and serve as an NPDES permit expire on **21 September 2011**, at which time surface water discharge is prohibited without administrative continuance by the Regional Water Board, pursuant to authorization in 40 CFR Part 122.6 and Title 23, CCR, Section 2235.4. The Discharger must file a complete Report of Waste Discharge in accordance with Title 23, CCR, Section 13376, not later than **25 March 2011**, 180 days before its permit expires, if it wishes to continue the discharge.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 21 September 2006.

_____
PAMELA C. CREEDON, Executive Officer

GEA: 9/21/06

Order Attachments:

Monitoring and Reporting Program No. R-2006-0091
A: Vicinity Map and Monitoring Well Locations
B: Site Plan and Wastewater Flow Schematic
C: Recycled Water Symbol
D: CTR Analysis
E: CTR Analysis for Bis (2-Ethylhexyl) Phthalate
F: Information Needs for Sludge Management Plan
G: Standard Monitoring Well Provisions
Information Sheet
Standard Provisions for Waste Discharge Requirements (NPDES) (February 2004) (Separate attachment to Discharger only)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0091
NPDES NO. CA0079189

FOR
CITY OF VISALIA
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code (CWC) section 13267. The Discharger shall not implement any changes to this MRP unless and until the Regional Water Board issues a revised MRP. Sample station locations are depicted on Attachment A. Changes to sample location(s) shall be established with concurrence of Regional Water Board's staff, and a description of the revised stations shall be submitted to the Regional Water Board and attached to this Order. All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with the latest edition of *Guidelines Establishing Test Procedures for Analysis of Pollutants*, promulgated by USEPA (40 CFR 136) or other procedures approved by the Regional Water Board. In reporting monitoring data, the Discharger shall indicate whether any analysis was performed using a method not in conformance with USEPA's Guidelines.

INFLUENT MONITORING

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent. Influent monitoring shall include at least the following:

Constituent	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
Settleable Solids	mL/L	Grab	Daily
pH	pH units	Grab	Daily
EC[1]	µmhos/cm	24-hr Composite[3]	Daily
BOD_5[2]		24-hr Composite[3]	2/week[4]
Concentration	mg/L		
Monthly Average	mg/L		
Suspended Solids		24-hr Composite[3]	2/week[4]
Concentration	mg/L		
Monthly Average	mg/L		
Ammonia	mg/L	Grab	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly
Metals[5]	mg/L	24-hr Composite[3]	Quarterly[6]
General Minerals[7]	mg/L	24-hr Composite[3]	Annual

[1] Conductivity at 25°C.

[2] Five-day biochemical oxygen demand at 20°C.

[3] Composite samples, as referenced hereafter in this program, shall be flow-proportioned composite samples effective **3 years following adoption of this Order**.

[4] One day between sample dates.

[5] Metals referenced hereafter in this program shall include aluminum, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

[6] Monitoring shall be performed in January, April, July, and October.

[7] General Minerals as referred to in this program shall include Alkalinity (as $CaCO_3$), Aluminum, Bicarbonate, Boron, Calcium, Carbonate (as $CaCO_3$), Chloride, Hardness (as $CaCO_3$), Iron, Magnesium, Manganese, Nitrate, Phosphate, Potassium, Sodium, and Sulfate. A cation-anion balance shall be performed and submitted with the general minerals analytical results.

EFFLUENT MONITORING

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. The Discharger has identified a single sampling site for all discharges (i.e., Discharge 001 to Mill Creek, Discharge 002 to the Use Area, and Discharge 003 to onsite disposal ponds). Samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

Constituent	Units	Type of Sample	Sampling Frequency[1]
Discharge 001, 002, 003 flow	mgd	Metered[2]	Continuous[2]
Discharge 001 and 002 Maximum Chlorine Residual	mg/L	Metered[3]	Continuous[3]
Discharges 001 and 002 Chlorine Residual[4]	mg/L	Grab	Daily
Settleable Solids	mL/L	Grab	Daily
pH	pH Units	Grab	Daily
EC	µmhos/cm	24-hr Composite	Daily
Temperature	°C (°F)	Grab	Daily
BOD_5			
Concentration	mg/L	24-hr Composite	
Discharge 001			3/Week
Discharge 002 and 003			2/Week
Monthly Average	mg/L	Calculated	Monthly
Percent Removal	%	Calculated	Monthly

Constituent	Units	Type of Sample	Sampling Frequency[1]

Total Suspended Solids			
Concentration	mg/L	24-hr Composite	
Discharge 001			3/Week
Discharge 002 and 003			2/Week
Monthly Average	mg/L	Calculated	Monthly
Percent Removal	%	Calculated	Monthly
Total Coliform Organisms	MPN[5]/100 mL	Grab	
Discharge 001 (Mill Creek)			3/Week
Discharge 002 (Use Area orchards)			Daily
Ammonia (**as N**)	mg/L	Grab	2/Month
Nitrate **(as N)**	mg/L	Grab	2/Month
Nitrite (**as N**)	mg/L	Grab	2/Month
Total Kjeldahl Nitrogen (TKN)	mg/L	Grab	2/Month
Total Nitrogen	mg/L	Calculated	2/Month
Total Dissolved Solids (TDS)[6]	mg/L	24-hr Composite	Monthly
Hardness	mg/L as $CaCO_3$	24-hr Composite	2/Month[17]
Lead	mg/L	24-hr Composite	2/Month[7, 8, 17]
Oil and Grease	mg/L	Grab	Monthly
Selenium	µg/L	24-hr Composite	2/Month[8]
Bis(2-ethylhexyl)Phthalate	µg/L	24-hr Composite[12]	Monthly[8, 17]
Acute Toxicity	% Survival	24-hr Composite	Quarterly[9, 10, 17, 19]
General Minerals[11]	mg/L	24-hr Composite	2/Year[14]
Metals	mg/L	24-hr Composite	Quarterly[10]
Title 22 Constituents[12]	varies	24-hr Composite[13]	2/Year[14, 20]
Priority Pollutants[15]	µg/L	24-hr Composite[13]	Annually[16, 21]

[1] Daily, 3/Week, 2/Week, and Weekly samples coincident with influent monitoring.

[2] Continuous effluent flow monitoring systems shall be operational by no later than **25 September 2009**, as specified in the time schedule of Provision H.15. Until that time, the Discharger shall report an estimate of the effluent flow rate based on the influent flow rate.

[3] Continuous chlorine residual monitoring systems, and composite samplers, or functional equivalents, shall be operational by no later than **25 March 2011**, as specified in the time schedule of Provision H.11. Until that time, grab samples shall be collected and analyzed daily. Report daily maximum for Discharge 001 and daily minimum for Discharge 002.

[4] When Discharge 002 to the walnut orchard occurs, the Discharger shall also calculate and the report the CT value and the modal contact time for its recycled wastewater to verify compliance with Recycled Water Specification G.4.b. The CT value is the product of total chlorine residual and modal contact time measured at the same point.

[5] Most probable number.

[6] TDS referenced hereafter in this program shall be determined using Environmental Protection Agency (USEPA) Method No. 160.1 for combined organic and inorganic TDS and USEPA Method No. 160.4 for inorganic TDS or equivalent analytical procedures specified in 40 Code of Federal Regulations (CFR) Part 136. TDS monitoring shall be coincident with EC monitoring subject to Executive Officer written approval.

[7] Coincident with hardness monitoring.

[8] If after six consecutive months of monitoring, the sample test results are ND (below MDL, PQL, or DLR, whichever is the lowest, and the detection limit is at or below the SIP required ML, and upon approval of the Executive Officer, the monitoring frequency may be reduced or eliminated.

[9] Beginning **26 March 2007**, all acute toxicity bioassays shall be performed according to *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012* (or latest edition) using *Pimephales promelas* with no pH adjustment, unless exceptions are granted to the Discharger by the Executive Officer.

[10] January, April, July, and October.

[11] General Minerals as referred to in this program shall include the constituents in the General Minerals Analyte List presented below.

[12] Title 22 constituents, as used in this program, shall refer to constituents identified in the technical report submitted pursuant to Provision H.8.

[13] Except where required otherwise by constituent testing protocol.

[14] January and July, coincident with General Minerals and Metals analysis.

[15] Reporting for priority pollutants, as referenced in this program, shall conform with *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* Reporting Requirements, section 2.4 et seq.

[16] Coincident with hardness (i.e., General Minerals) sampling.

[17] Monitor only if discharging to Mill Creek (Discharge 001).

[18] Coincident with metals sampling.

[19] Sampling to start after installation of dechlorination facilities as required by Provision H.10.

[20] Sampling to start after completion of technical report required by Provision H.8 .

[21] Effluent monitoring for priority pollutants shall e discontinued if the Discharger decides to cease discharge to Mill Creek in accordance with Provision H.11.c.1.

The Discharger shall notify the Regional Water Board by telephone **(559) 445-5116** within 24 hours of having knowledge of any of the following when recycled water is delivered to the Use Area walnut orchard: (1) failure of chlorination equipment, (2) loss of detectable chlorine residual, and (3) effluent total coliform organism concentration exceeding 240 MPN/100 mL.

General Minerals Analyte List

Alkalinity (as $CaCO_3$)	Carbonate (as $CaCO_3$)	Manganese
Aluminum	Chloride	Phosphate
Bicarbonate (as $CaCO_3$)	Hardness (as $CaCO_3$)	Potassium
Boron	Iron	Sodium
Calcium	Magnesium	Sulfate

General Minerals Sample Collection and Preservation: With the exception of influent and effluent samples, samples placed in an acid-preserved bottle must first be filtered through a 0.45 µm nominal pore size filter. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24-hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

RECEIVING SURFACE WATER MONITORING

All receiving surface water samples shall be grab samples. Each specific location shall be marked with a monument. Any proposed change in specific sampling locations after monument establishment shall require written concurrence of Regional Water Board staff. Receiving water monitoring of R.1 is necessary only when there is upstream flow in R.1. Notations regarding whether there is flow in R.1 shall be included in summaries of weekly Receiving Surface Water Monitoring. Receiving surface water monitoring shall include at least the following:

Station	Description
R-1	Upstream of the backwater conditions as described in Finding No. 32 but not to exceed 5,000 feet upstream from the discharge point to Mill Creek
R-2	Not to exceed 1,000 feet downstream from the discharge point to Mill Creek

Constituents	Units	Sampling Frequency
Dissolved Oxygen	mg/L	Weekly
PH	pH units	Weekly
pH Change (R1 – R2)	pH units	Weekly
Turbidity	NTU	Weekly
Temperature	°C (°F)	Weekly
Monthly Average Temperature Change (R1-R2)	°C (°F)	Weekly
EC	µmhos/cm	Weekly
Fecal Coliform Organisms	MPN/100 mL	Monthly
Ammonia[1]	mg/L	Weekly
Un-ionized Ammonia as N (calculated)	mg/L	Weekly
Chlorine Residual[2]	mg/L	Weekly
Lead	mg/L	Monthly[4]
Hardness (as $CaCO_3$)	mg/L	Monthly[5]
Priority Pollutants	µg/L	Annual[3]

[1] Temperature and pH shall be determined at the time of sample collection for the calculation of un-ionized

ammonia.

2 Minimum detection limit shall be no greater than 0.01 mg/L.

3 When Mill Creek is flowing upstream from the discharge, coincident with hardness monitoring.

4 Monitoring frequency may be reduced or eliminated based on findings of effluent lead monitoring and upon approval of the Executive Officer.

5 If lead monitoring frequency is reduced, the monitoring frequency of hardness reduced to coincide with the monitoring frequency of lead, except that hardness must be monitored coincident with priority pollutant monitoring.

In conducting the receiving water monitoring, a log shall be kept of the receiving water conditions throughout the reaches bounded by Stations R-l and R-2. The Discharger shall indicate in each monthly monitoring report the times during which discharge to Mill Creek (Discharge 001) occurred and the presence or absence of upstream flow during the discharge. Notes on receiving water conditions shall be summarized in the monitoring report. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Additionally, the Discharger shall at least once monthly inspect reaches of Mill Creek that are accessible to the public to note whether there is evidence of water contact and water contact recreation, and, if so, to describe the evidence in monthly monitoring reports.

THREE SPECIES CHRONIC TOXICITY MONITORING

Beginning **25 September 2007**, Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA/821/R-02/013, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, October 2002. Chronic toxicity samples shall be collected at Discharge 001 immediately prior to discharge to Mill Creek. Samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days after receiving test results. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum*
Frequency: *Quarterly*
Dilution Series: *See Table below*

	Dilutions (%)					Controls	
	100	50	25	12.5	6.25	Receiving Water[1]	Lab Water
% Effluent	100	50	25	12.5	6.25	0	0
% Dilution Water[1]	0	50	75	87.5	93.75	100	0
% Lab Water[2]	0	0	0	0	0	0	100

[1] Dilution water may be uncontaminated receiving water, a standard synthetic (reconstituted) water, or another acceptable dilution water as defined in Section 7 of EPA/821/R-02/013. The dilution series may be altered upon written approval of Regional Water Board staff.

[2] Lab water shall meet USEPA protocol requirements.

If toxicity is found during quarterly monitoring in any of the 100 percent tests, then in addition to retesting as described above, the Discharger shall conduct chronic toxicity monitoring on a monthly basis for at least four months or until such time that chronic toxicity is absent. In addition, if toxicity is found during any quarterly toxicity monitoring, the Discharger shall initiate a TIE and TRE as specified in Provision H.5.

The toxicity testing may be modified to eliminate ammonia-related toxicity until **25 March 2011,** or until compliance with Provision H.11.g, whichever is sooner, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity.

CALIFORNIA TOXICS RULE MONITORING

A. Priority Pollutants

The Discharger shall monitor the effluent and receiving water for Metals and Inorganic, Volatile Organic, Semi-Volatile Organic, and Pesticide priority pollutants **annually**. Effluent and receiving water samples shall be collected concurrently. Priority pollutants are defined as USEPA priority toxic pollutants and consist of the constituents listed in the most recent National Toxics Rule and California Toxics Rule. Volatile and Semi-Volatile Organic priority pollutants are listed in Tables 2a and 2b in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Bays, and Estuaries of California* (Implementation Policy). Results of sampling shall be submitted by the **first day of the second month** following sampling. Reporting shall conform with Implementation Policy Reporting Requirements, Section 2.4 et seq. Effluent and receiving water samples must be analyzed for pH and hardness in order to calculate translators, which are needed for pollutants that are hardness and/or pH dependent. All analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the USEPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.

b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration." Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

Constituent[1,2]	Units	Type of Sample
Metals	µg/L	Grab
Mercury	µg/L	Grab
Chromium VI	µg/L	Grab
Arsenic	µg/L	Grab
Volatile Organics	µg/L	Grab
Semi-Volatile Organics	µg/L	Grab
Pesticides	µg/L	Grab

[1] Constituents shall be analyzed using a method approved by USEPA. The chosen analytical method must be able to achieve the required quantitation limit for the given constituent, as specified by the MLs listed in Appendix 4 of the Implementation Policy.

[2] Report all detected peaks.

B. Dioxin

The Discharger shall test effluent and receiving water for each of the 17 TCDD congeners listed in Table 4 of the Implementation Policy. The Discharger shall report the analytical results of the effluent and receiving water monitoring for each congener, including the minimum quantifiable level (ML) and the minimum detection level (MDL), and the measured or estimated concentration. The Discharger shall multiply each measured or estimated congener concentration by its respective toxicity equivalence factor (TEF) value and report the sum of these values. The Discharger must monitor for the presence of the 17 congeners **annually**. Results of sampling shall be submitted by the **first day of the second month** following sampling. Reporting shall conform with Implementation Policy Reporting Requirements Section 2.4 et seq.

PRETREATMENT PROGRAM MONITORING

The Discharger shall submit an annual report to the Regional Water Board, with copies to the USEPA Regional Administrator and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, the Discharger shall include the reasons for the noncompliance and state how and when the Discharger shall comply with such conditions and requirements. This annual report shall be submitted by **1 March** and shall contain, but not be limited to items G.1 through G.10 of *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)* dated February 2004 (Standard Provisions).

In addition to the information required in the annual report, the Discharger shall report quarterly the information contained in G.4 (a through g) of Standard Provisions. The reports shall also describe progress towards compliance with audit or pretreatment compliance inspection requirements. Reports shall be submitted by **1st day of the second month following the end of each quarter**. The fourth quarterly report may be included as part of the annual report. If none of the aforementioned conditions exists, at a minimum, the Discharger must submit a letter certifying that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter.

SLUDGE MONITORING

The Discharger shall collect and analyze at least six representative sludge samples annually from the treatment facilities prior to disposal. Composite sludge sampling shall be performed in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the following metals:

Arsenic	Lead	Nickel
Cadmium	Mercury	Selenium
Copper	Molybdenum	Zinc

Sludge sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report. Prior to any disposal or land application of sludge or biosolids, or removal of sludge or biosolids from the WWTF site, the monitoring and record keeping requirements of 40 CFR 503 shall be met.

USE AREA MONITORING

The type of crop(s) irrigated, amounts of water and/or recycled water applied to the crops(s) (in acre-feet) and amounts of biosolids and chemical fertilizers (in pounds of nitrogen per acre) shall be measured and reported to the Regional Water Board quarterly in accordance with the following schedule:

Monitoring Period	Data Due
January – March	1 May
April – June	1 August
July – September	1 November
October - December	1 February

WATER SUPPLY MONITORING

Source water sampling stations shall be established where a representative samples of the municipal water supply can be obtained. The results shall be reported as a flow-weighted annual average and be supplemented with supporting calculations. Source water monitoring shall include:

Constituent	Units	Type of Sample	Sampling Frequency
EC	µmhos/cm	Grab	Annually
TDS	mg/L	Grab	Annually
General Minerals	mg/L	Grab	Once every three years[1]

[1] Coincident with monitoring required by the California Department of Health Services.

DISPOSAL POND MONITORING

When discharging to the WWTF's disposal ponds, samples shall be collected at a depth of 1.0 foot from the opposite side of each pond inlet between the hours of 0800 and 0900. The following shall constitute the disposal pond monitoring program:

Constituent	Units	Type of Sample	Sampling Frequency[1]
Dissolved Oxygen (DO)	mg/L	Grab	As required[2]
Freeboard	feet[3]	Observation	Daily

[1] When effluent discharged to disposal ponds.

[2] If offensive odor detected by or brought to the attention of WWTF personnel, monitor affected pond(s) daily until DO is > 1.0 mg/L. If DO results for any pond in use create an odor or nuisance, the Discharger shall implement corrective measures as specified in the operations and maintenance manual and monitor said pond daily until its DO stabilizes above 1.0 mg/L.

[3] Freeboard shall be measured in all disposal ponds to the nearest one-tenth of a foot, as determined by permanent staff gages.

GROUNDWATER MONITORING

Prior to collecting samples and after measuring the water level, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

At least quarterly and concurrently with groundwater quality sampling, the Discharger shall measure the water level in each well as groundwater depth (in feet and hundredths) and as groundwater surface elevation (in feet and hundredths above mean sea level). Samples shall be collected from approved monitoring wells and analyze for the following constituents at the following frequency:

Constituent/Parameter	Units	Type of Sample	Frequency
Depth to groundwater	To 0.01 foot (hundredths)	Measured	Quarterly[1,2]
Groundwater elevation	Above mean sea level, to 0.01 foot	Calculated	Quarterly[1,2]
pH	pH Units	Grab	Quarterly[1,2]
Total Coliform Organisms	MPN/100 mL	Grab	Quarterly[1,2]
Total Organic Carbon	mg/L	Grab	Quarterly[1,2]
Nitrogen compounds:			
Ammonia and Ammonium ions (as NH_4)	mg/L	Grab	Quarterly[1,2]
Nitrate (as NO_3-N)	mg/L	Grab	Quarterly[1,2]
Total Kjeldahl Nitrogen (TKN)	mg/L	Grab	Quarterly[1,2]
Total Nitrogen (as N)	mg/L	Calculated	Quarterly[1,2]
Salinity compounds/parameters:			
EC	µmhos/cm	Grab	Quarterly[1,2]
Total dissolved solids	mg/L	Grab	Quarterly[1,2]
SAR[3]	None	Calculated	Quarterly[1,2]
Lead	mg/L	Grab	Quarterly[1,2]
General Minerals[4]	mg/L	Grab	Quarterly[1,2]
Title 22 Constituents[7]	varies	Grab	Quarterly[1,6] for the first year, annually[5] thereafter
Priority Pollutants[7]	varies	Grab	Annually[5,8]

[1] January, April, July and October

[2] New monitoring wells installed in accordance with Provision H.12 and used to determine background water quality shall be monitored monthly for one year, after which monitoring frequency for such wells may be returned to quarterly.

[3] Sodium adsorption ratio $(SAR) = \frac{Na}{\sqrt{\frac{Ca + Mg}{2}}}$, where Na, Cl, and Mg are in meq/L

[4] Samples shall pass through a 0.45 µm filter prior to analysis.

[5] October

[6] New monitoring wells installed in accordance with Provision H.12 and used to determine background water quality shall be monitored for Title 22 constituents as follows: After the first month's sampling, Title 22 constituents with concentrations at or above the MCL shall be monitored monthly for one year. After one year, the monitoring frequency shall be annually. Title 22 constituents with concentrations below the MCL shall be monitored as described in the table above.

[7] Monitoring of these constituents will be limited to wells selected in concurrence with Regional Water Board staff that are representative of groundwater reflecting the highest impact from the WWTF and its discharges to land.

[8] New monitoring wells installed in accordance with Provision H.12 and used to determine background water quality shall be monitored for priority pollutants as follows: After the first month's sampling, priority pollutants with concentrations at or above the reported detection limit (i.e., not reported as ND) shall be monitored quarterly for one year. After one year, the monitoring frequency shall be annually. Priority pollutants with concentrations below the reported detection limit shall be monitored as described in the table above.

The Discharger shall collect samples from its existing groundwater monitoring well network, as described in the table above, immediately upon adoption of this Order. New groundwater monitoring wells will be added to the network in accordance with Provision H.12. The Discharger shall start collecting samples from additional groundwater monitoring wells within 180 days of Executive Officer approval as described in Provision H.12, task b. In the technical report required by Provision H.11 task d describing the results of the first sampling event performed from new wells added to the groundwater monitoring well network, the Discharger shall include a detailed description of the procedures and techniques for: (a) sample collection, including purging techniques, sampling equipment, and decontamination of sampling equipment; (b) sample preservation and shipment; (c) analytical procedures; and (d) chain of custody control. As it continues to monitor groundwater pursuant to this program, the Discharger shall report when it deviates from these procedures and techniques.

Additionally, the Discharger shall include in the Provision H.12 task d technical report a technical description of proposed Data Analysis Methods for evaluating groundwater monitoring data (e.g., equivalent or similar to that described in Title 27, section 20415(e)(7-10)), consisting, at a minimum, methods to: (a) characterize natural background water quality of monitored constituents; (b) determine statistically significant differences between background and compliance wells for constituents that do not have water quality objectives or have background concentrations that exceed water quality objectives; and (c) select the minimum sample size required for the proposed data analysis approach

and, if greater than that required by this program (i.e., quarterly), identification of when and how the additional samples will be collected during the one-year groundwater characterization period.

The network-wide false positive rate and statistical power are directly related. That is, as the false-positive rate increases, power, the ability of the statistical test to detect an actual release, also increases. Conversely, as the false-positive rate decreases, statistical power also decreases. Strategies to minimize the network-wide false positive rate and maximize a statistical test's power generally require careful review of the analytical data set, selection of a minimum number of representative wells and constituents to compare, and a retesting procedure for wells when an elevated concentration is detected[1]. Due to the importance of these factors performing statistical analyses of groundwater data, the Discharger must also include in the Provision H.12 task e technical report a technical discussion on how it intends to (a) minimize network-wide false positive rate to less than five percent, and (b) maximize statistical power. As it continues to monitor groundwater pursuant to this program, the Discharger shall report when it deviates from the proposed Data Analysis Methods.

After one full year of groundwater monitoring, the Discharger shall analyze monitoring data from background well(s) to compute background water quality values for monitored constituents selected in concurrence with Regional Water Board staff to perform an initial assessment of whether there is evidence of an impact from the WWTF operation or discharge. To complete this task, the Discharger shall follow its proposed Data Analysis Methods described in the technical report required by Provision H.12 task e. Reports thereafter shall be submitted quarterly by the **1st day of the second month** after the prescribed sample collection and shall include the same analysis.

The Discharger shall characterize groundwater quality using the proposed Data Analysis Method on constituents below selected in concurrence with Regional Water Board staff:

Groundwater Constituents to Evaluate Using Data Analysis Method

Alkalinity (as $CaCO_3$)	Hardness (as CaCO3)	Sodium
Ammonia (as N)	Magnesium	Sulfate
Bicarbonate (as CaCO3)	Nitrate (as N)	TDS
Boron	Iron and Manganese	TKN
Calcium	Phosphate	TOC
Chloride	Potassium	Total Nitrogen
	EC	

REPORTING

At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit self-monitoring reports in accordance with the requirements described herein.

[1] A detailed discussion of these topics can be found in Addendum to Interim Final Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, USEPA, July 1992.

All reports submitted in response to this program shall comply with the signatory requirements of Standard Provision D.6. Monitoring results shall be submitted to the Regional Water Board by the **1st day of the second month** following sample collection. Quarterly monitoring results shall be submitted by the **1st day of the second month** following each calendar quarter. Annual monitoring results shall be submitted by **28 February** of each year. Reports shall be submitted whether or not there was a discharge during the reporting period. Failure to submit a report will result in an assessment of a Mandatory Minimum Penalty pursuant to CWC Section 13385. Pursuant to CWC Section 13385.1, any monitoring report submitted more than 30 days late is subject to a Mandatory Minimum Penalty.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD_5 and Suspended Solids, should be determined and recorded. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **1 February of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:

1. The names, certificate grades, and general responsibilities of all persons in charge of wastewater treatment and disposal (Standard Provision A.5).
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations.
3. A statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).
4. A statement whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment facility as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
5. The results of an annual evaluation conducted pursuant to Standard Provision B.5 and a figure depicting monthly average discharge flow for the past five years.
6. The most recent annual water supply report for the City of Visalia and for the unincorporated community of Goshen, if different.
7. A description for the past calendar year of the treatment performance of Southern California Edison's groundwater cleanup process for removing phenol and pentachlorophenol and summary of monitoring data for these two constituents.
8. Verification that the cropping pattern in the Mill Creek vicinity downstream of the discharge remains unchanged from that described in Finding No. 37 of the Waste Discharge Requirements,

or a description of cropping pattern changes (e.g., types of new crops grown in the subject area and whether water from Mill Creek is used to irrigate these new crops).

9. A summary of sludge monitoring, including:

   a. Annual sludge production in dry tons and percent solids.

   b. A schematic diagram showing sludge handling facilities and solids flow diagram.

   c. A description of disposal methods, including the following information related to the disposal methods used at the WWTF. If more than one method is used, include the percentage of annual sludge production disposed of by each method.

      i. For **landfill disposal**, include: (a) the Order numbers of WDRs that regulate the landfill(s) used, (b) the present classifications of the landfill(s) used, and (c) the names and locations of the facilities receiving sludge.

      ii. For **land application**, include: (a) the locations of the site(s), and (b) the Order numbers of any WDRs that regulate the site(s).

      iii. For **incineration**, include: (a) the names and location of the site(s) where sludge incineration occurs, (b) the Order numbers of WDRs that regulate the site(s), (c) the disposal method of ash, and (d) the names and locations of facilities receiving ash (if applicable).

      iv. For **composting**, include: (a) the location of the site(s), and (b) the Order numbers of any WDRs that regulate the site(s).

10. A summary of groundwater monitoring in a format (both printed and electronic) selected in concurrence with Regional Water Board staff, including

    a. Hydrographs showing the groundwater elevation in approved wells for at least the previous five years or to the extent that such data are available, whichever is fewer. The hydrographs should show groundwater elevation with respect to the elevations of the top and bottom of the screened interval and be presented at a scale of values appropriate to show trends or variations in groundwater elevation. The scale for the background plots shall be the same as that used to plot downgradient elevation data;

    b. Graphs of the laboratory analytical data for samples taken from approved wells within at least the previous five calendar years (as data become available). Each such graph shall plot the concentration of one or more waste constituents specified above selected in concurrence with Regional Water Board staff. The graphs shall plot each datum, rather than plotting mean values, over time for a given monitoring well, at a scale appropriate to show trends or variations in water quality. For any given constituent, the scale for the background plots shall be the same as that used to plot downgradient data.

    c. All monitoring analytical data obtained during the previous four quarterly reporting periods, presented in tabular form, as well as CD or on 3.5” computer diskette.

11. A summary of the following Discharge 002 walnut orchard monitoring data collected during the previous 12 months: (1) daily coliform, (2) running 7-day median coliform, (3) maximum daily coliform for each month during the irrigation season, and (4) minimum daily chlorine residual.

12. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with this Order.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by:_____
PAMELA C. CREEDON, Executive Officer

21 September 2006
(Date)

GEA: 9/21/06

INFORMATION SHEET

ORDER NO. R5-2006-0091
CITY OF VISALIA
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

GENERAL INFORMATION

The City of Visalia (City or Discharger) applied for a permit renewal to discharge disinfected secondary treated municipal wastewater from the Visalia Water Conservation Plant, a wastewater treatment facility (WWTF), under the National Pollutant Discharge Elimination System (NPDES). The WWTF provides municipal sewerage services to 96,000 residents in the city of Visalia and the unincorporated community of Goshen. The City discharges effluent to either Mill Creek, a water of the United States, to a 900-acre, City-owned walnut orchard (Use Area) immediately south of the WWTF, and to onsite disposal ponds. The City began discharging most of its effluent to Mill Creek in 1996. The WWTF vicinity is depicted in Attachment A. The WWTF, including discharge to Mill Creek and to land, is currently regulated by Waste Discharge Requirements (WDRs) Order No. 97-061 (NPDES Permit No. CA0079189).

In general, the current Order's treatment requirements include:

- Minimum 85% removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) or a maximum monthly average 30 mg/L each, whichever is more stringent
- Maximum settleable solids of 0.02 ml/L
- Maximum monthly flow-weighted average electrical conductivity at 25° (EC) of 1,000 µmhos/cm or 500 µmhos/cm over source water, whichever is less
- Minimum pH of 6.0 and maximum pH of 9.0

The current Order does not prescribe a residual chlorine effluent limitation nor require monitoring of effluent for toxicity. It does require groundwater monitoring on a regional basis to evaluate the extent of groundwater degradation for salinity caused by the City's discharge as discussed later.

The WWTF has a design capacity of 22 million gallons per day (mgd) and currently treats a monthly average flow of about 12 mgd. The WWTF has a septage receiving station and consists of headworks, four primary and four secondary clarifiers, four plastic media trickling filters, four aeration basins, and four chlorine contact basins. Six anaerobic sludge digesters process sludge from the primary clarifiers and waste activated sludge, and discharge to two unlined sludge pits used to settle solids from the supernatant. The solids are discharged to thirty unlined sludge drying beds, about 16 acres total. The supernatant is pumped from near the surface of the pits and returned to the headworks. The WWTF process return flows consist of gravity belt thickener filtrate, scum from the secondary clarifiers, supernatant from the digested sludge pits, decant from the sludge drying beds, and septage hauler rinse water. These flows amount to about two percent of the WWTF's inflow and enter the WWTF through wet wells prior to the headworks. The City characterizes influent quality from samples collected from these wet wells. The City's current method of collecting composite influent and effluent samples is not automated to be flow-proportioned. The WWTF's process flow diagram is depicted in Attachment B.

The Discharger's RWD for NPDES permit renewal indicates the WWTF produces an average of approximately 8,275 tons of dried sludge annually. WWTF sludge is dried for approximately 60 to 90 days and then transferred to an unlined onsite stockpile area for up to three years. Twice yearly, dry stockpiled sludge is discharged to farmland within the City of Visalia Municipal Airport for use as a soil

amendment pursuant to Order No. 2004-0012-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*.

The City adopted an Environmental Impact Report (EIR) in 1992 for WWTF expansion in accordance with the California Environmental Quality Act (CEQA) and the State CEQA guidelines. The Regional Water Board considered the EIR as required by Title 14, CCR, Section 15096, and concurred with its findings when it issued the current Order. The City began its expansion in 1993 to increase capacity from 12.5 to 20 mgd. The City's EIR discussed impacts from expanding the plant to a maximum flow of 20 mgd. The City anticipated its population to grow at a rate that would require the WWTF to treat 20 mgd by year 2000. By the mid-1990, the City's realized growth rate was much less than anticipated. Accordingly, the City decided to expand the WWTF capacity to 20 mgd in phases. The recently expanded WWTF headworks contain five pumps to accommodate a total instantaneous inflow of 40 mgd. There is space to add another pump to bring the ultimate long-term instantaneous inflow capacity to 55 mgd. The City requested bid proposals for its continued treatment expansion to 20 mgd capacity that includes one additional primary clarifier, secondary clarifier, chlorine contact basin, and digester. The City completed the expansion in November 2003.

By letter dated 7 February 2003, the City indicated that the design BOD_5 loading for the WWTF was based on its 1995 Master Plan Update estimate rather than more recently observed data in self-monitoring reports, resulting in an "over design" of capacity. The City re-evaluated the WWTF capacity in September 2002 and indicated that the WWTF as designed would have a capacity of 22 mgd, in lieu of the 20 mgd capacity previously reported. By letter dated 7 January 2004, the Discharger requested the State Water Board to reclassify the WWTF from a Class IV to a Class V facility. The State Water Board reclassified the WWTF to a Class V facility on 13 May 2004.

Pretreatment

The City has an Industrial Pretreatment Program (IPP) pursuant to 40 CFR 403 with 17 permitted significant industrial users (SIUs), seven of which are federal categorical dischargers. The Regional Water Board approved the City's IPP by Notice of Decision dated 26 May 1992. Table 1 below lists the City's SIUs and identifies which are federal categorical dischargers.

TABLE 1
SIGNIFICANT INDUSTRIAL USERS (SIUs)

Industry	Reason for SIU Classification	Federal Categorical Pretreatment Standard or Local Limit
Advanced Food Products	Discharge volume and conventional pollutant loadings	Local Limits
Basic Chemical Solutions	Categorically regulated	40 CFR 442
Everything Metal Imaginable	Categorically regulated	40 CFR 464 Subpart B
Everything Metal Imaginable	Categorically regulated	40 CFR 464 Subpart B
Heller Performance Polymers	Reasonable potential to adversely impact the WWTF	Local Limits

TABLE 1
SIGNIFICANT INDUSTRIAL USERS (SIUs)

Industry	Reason for SIU Classification	Federal Categorical Pretreatment Standard or Local Limit
Josten's Printing and Publishing	Reasonable potential to adversely impact the WWTF	Local Limits
Kawneer	Categorically regulated	40 CFR 433
Kraft Foods Inc.	Discharge volume and conventional pollutant loadings	Local Limits
Mission Uniform	Discharge volume and conventional pollutant loadings	Local Limits
Pacific Western Eagle (Formerly Pac. Western Ext. Plastics)	Reasonable potential to adversely impact the WWTF	Local Limits
Pregis Innovative Packaging (Formerly PACTIV)	Reasonable potential to adversely impact the WWTF	Local Limits
Reynolds Food Packaging	Reasonable potential to adversely impact the WWTF	Local Limits
Sequoia Walnut Growers	Reasonable potential to adversely impact the WWTF	Local Limits
Southern California Edison	Reasonable potential to adversely impact the WWTF	Local Limits
Visalia Custom Chrome	Categorically regulated	40 CFR 433
Visalia Manufacturing	Categorically regulated	40 CFR 464 Subparts A and D
Voltage Multipliers Inc.	Categorically regulated	40 CFR 469

Pretreatment Compliance History

Prior to 2000, the City was in chronic noncompliance of its effluent limitation for EC, primarily due to industrial discharges of highly saline waste. The City's IPP was ineffective in preventing high EC industrial wastewater from entering the WWTF. As the WWTF is unable to remove salt, pass through of salt occurred. Because of chronic violations of the City's effluent limitation for EC and the resulting adverse impact to groundwater for EC from percolated effluent, the Regional Water Board adopted, along with the current Order, Cease and Desist Order No. 97-062 (CDO). The CDO required the Discharger to submit a report by 1 May 1997 that: 1) evaluated the EC contribution to the WWTF effluent from each SIU; 2) determined how much each SIU may reasonably reduce its EC contribution to the WWTF; and 3) identified the measures employed by SIUs to achieve the necessary EC reduction to bring the WWTF discharge into compliance. The CDO further required the Discharger to revise its Industrial User Permits, and its pretreatment ordinance as necessary, to implement the listed EC goals and schedules by 1 December 1997. The CDO required the City to comply with its effluent limitation for EC by 15 April 1999. The City did not meet this deadline, but determined that the primary discharger of high EC wastewater was an olive processor (Musco Olive Products South). The City continued to work with its industrial dischargers and finally achieved compliance when the olive

processor relocated to its main plant rather than comply with City's IPP[1]. Since about mid-2000, the City has consistently complied with its effluent EC limitation.

The CDO also required the City to investigate the extent of groundwater degradation for salinity caused by its discharge and implement corrective measures to assure compliance with the current Order's Discharge Prohibition A.4, "Discharge of wastes that cause taste or odor producing substances, chemicals…in surface or groundwater to reach concentrations that create nuisance or adversely affect beneficial uses is prohibited," and Receiving Water Limitation E.1 concerning groundwater, "Contain waste constituents in concentrations greater than background water quality, except for the minerals measured indirectly by EC. The EC shall not exceed an incremental increase of 15 µmhos/cm over any five year period, or a maximum of 900 µmhos/cm, whichever is less," in accordance with the following tasks and time schedule:

1. By 15 May 1997, submit a work plan to assess the extent of groundwater pollution.
2. By 20 January 1998, submit a report evaluating the work described in the work plan.
3. Beginning March 1998, submit monthly progress reports and continuing until all corrective measures are completed.
4. By 3 February 1999, complete all measures to control the migration of the pollutants.

The most recent groundwater monitoring data is summarized in the Discharger's *Groundwater Monitoring Program Fall 2004 Semi-Annual Data Transmittal* (Fall 2004 Report) and indicates a significant reduction in the high salinity groundwater identified in the Discharger's 30 January 1998 Report. MW-G, at the southeast end of the WWTF, initially showed the greatest impact with EC of 1,300 µmhos/cm and chloride above 120 mg/L. Groundwater at MW-G now has EC and chloride of about 900 µmhos/cm and 44 mg/L, respectively. Similar reductions in salt constituent concentrations occurred in MW-J1, MW-K1, and MW-M. It appears that regional groundwater pumping of agricultural wells is achieving what the Discharger proposed to implement pursuant to the CDO.

Recent Violations

Soon after the City discontinued mainly relying on onsite disposal ponds for effluent disposal, it began to allow local haulers of restaurant grease trap waste to discharge this waste to one of the dry disposal ponds. Haulers would drain their grease loads through their truck's hose. Discharge location depended on weather conditions. During the rainy season, haulers would discharge close to the pond's perimeter access road. During the remainder of the year, haulers would discharge as they drove their trucks around the dry pond bottom. In other words, there was no attempt to discharge this waste in a controlled, uniform fashion. Grease trap waste is characterized by high concentrations of organic and nutrient waste constituents. Due to the high organic strength character of grease trap waste, its discharge to land under ambient conditions may cause waste constituents to occur in groundwater in concentrations that exceed water quality objectives. Accordingly, grease trap waste is a designated

[1] Musco Olive Products consolidated its operations in Tracy, San Joaquin County, and has yet to comply with the waste discharge requirements that regulate that plant's discharges. It has been subjected to a series of enforcement actions, including administrative civil liability, by the Regional Water Board.

waste as defined in California Water Code (CWC) Section 137173(b). Discharge Prohibition A.3 of the current Order prohibits the discharge of designated waste at the WWTF.

The City's practice of grease trap waste discharge was documented during a Regional Water Board staff inspection on 1 June 2001. Consequently, the Discharger was issued a Notice of Violation on 2 August 2001 for this practice. In response, the Discharger explained it began this practice because the City's producers of grease trap waste had no other recourse for disposal when Tulare County's lined landfills ceased accepting grease trap waste.

In late 2001, the Discharger characterized grease trap waste from three haulers for metals, nitrogen compounds, and total organic carbon. The waste contained concentrations of aluminum, barium, copper, iron, lead, mercury, and zinc well below "hazardous waste" levels as defined in Chapter 11, Division 4.5, Title 22, CCR. However, the waste is characterized by very high organic nitrogen and carbon content, as indicated in Table 2 (all concentrations in mg/L).

TABLE 2
GREASE TRAP WASTE CHARACTERIZATION

Date Sampled	BOD_5	Total Organic Carbon	Total Nitrogen (all TKN)
11/27/01	18,000	3,000	230
12/11/01	26,000	1,800	1,000
12/13/01	4,300	2,200	130

The Discharger continued accepting grease trap waste in defiance of the NOV until issued a second NOV on 7 March 2002. The second NOV directed the Discharger to immediately cease discharging grease trap waste, and instructed the Discharger to submit a RWD specific for this discharge if it wished to continue accepting this waste. By letter dated 12 March 2002, the City indicated it no longer accepted grease trap waste at the WWTF for land disposal. The 7 March 2002 NOV also noted the Discharger was in violation of Discharge Specification B.10 for not having sufficient warning signs at the effluent outfall to Mill Creek and the section of Mill Creek where there is easy public access along Avenue 288 and Road 68. The City, in its response, provided a photograph of its new signs along Mill Creek to comply with Discharge Specification B.10.

Sludge Handling Facilities

The City discharges sludge from its digesters to two unlined sludge pits. The City pumps settled solids from the unlined sludge pits to 30 unlined sludge drying beds and supernatant back to the headworks. The City asserts its unlined sludge drying beds "self-sealed" through use; however, the City also reports that the "sealing" surface layer in the unlined sludge drying beds is often removed when scraping out the dried sludge.

Evidence from other WWTFs in the region indicate that unlined sludge beds do not "self seal" to the degree necessary to provide an effective barrier to preclude the release of waste constituents in sludge leachate to soil. Once released to soil, these waste constituents, if not attenuated in the soil profile, have

the potential to cause groundwater degradation and pollution. The following are documented examples of the impact to soil and groundwater from the use of unlined sludge drying beds.

> The City of Merced discharges sludge and anaerobic digester supernatant to unlined beds at its municipal WWTF. Merced contended that, in addition to beds' "self sealing" properties, a layer of natural hardpan at the WWTF precluded waste constituents in sludge leachate and supernatant from impacting groundwater. Groundwater in the vicinity of the sludge drying beds occurs between 5 to 11 feet below ground surface (bgs). Order No. 5-00-246 for Merced's WWTF required groundwater passing under the sludge drying beds be characterized and, if degraded or polluted, modifications to be implemented (e.g., line beds or install mechanical dewatering equipment). Monitoring data shows groundwater polluted for nitrate and bacteria, and degraded for barium, total organic carbon, and salt constituents. Merced is in the process of soliciting proposals from engineering consultants on a plan of action to modify the WWTF's sludge handling practices and to remediate polluted groundwater.
>
> The City of Bakersfield dewaters sludge from its Wastewater Treatment Plant No. 3 (Plant 3) in unlined sludge drying beds. Bakersfield contended that the beds "self seal" and do not impact the soil or groundwater. To confirm this assumption, Bakersfield recently monitored the quality of soils underlying the sludge drying beds. Soil samples were collected from 4 and 10 feet bgs. The results document that waste constituents have entered the soil profile and have in places increased with depth. Impacts to groundwater from these waste constituents have not yet been determined. Bakersfield will soon install groundwater monitoring wells in the vicinity of the sludge drying beds to evaluate the extent to which groundwater has been impacted by the sludge drying beds.
>
> The City of Reedley has been investigating groundwater polluted by nitrate and salts at its WWTF since the early 1990s. Reedley determined the source of pollution was the WWTF's unlined sludge drying beds. In 1996, Reedley installed a centrifuge sludge dewatering unit and abandoned use of the sludge drying beds. Reedley has identified impacts to groundwater from waste constituents released from the sludge drying beds to depths of nearly 60 feet. Reedley will soon implement a pump-and-treat system to contain and remediate the plume of groundwater pollution.

These examples indicate there is reasonable potential for groundwater to be polluted by the City of Visalia's use of unlined sludge handling facilities at its WWTF, especially considering the following site conditions.

Hydrology, Geology and Soils

The WWTF lies within the 100-year flood hazard, according to maps published by the Federal Emergency Management Agency, but is constructed above the 100-year flood plain elevation. Surface topography indicates a southwest slope of 1.2 feet per 1,000 feet. The Discharger retains storm water runoff on the WWTF property and either pumps the runoff to the headworks or directs the runoff to dedicated unlined storm water retention ponds.

Soils in the WWTF area are moderately permeable alluvial deposits originating in the Sierra Nevada Mountains to the east. The surface soil is classified as Tagus fine sandy loam. The geology of the Visalia area generally consists of deep underlying metamorphic and granitic rock overlain by hundreds of feet of alluvium. The first 100 feet below ground surface (bgs) contains interbedded sand zones underlain by relatively thin saturated beds of sand mixed with clay, clayey silt, and silt that extends to depths of 240 to 275 feet bgs. A highly impermeable and regionally extensive clay layer (identified as the E-clay) lies beneath these soils and is approximately 20 feet thick. Stratigraphic and water quality data indicate the E-clay to be the first effective aquitard protecting the high quality underlying groundwater.

In 1996, the City began disposing most of its effluent to Mill Creek, an ephemeral stream originating near Lake Kaweah in the foothills east of the City. Mill Creek conveys flood releases from Lake Kaweah, and occasionally delivers irrigation supply water from Lake Kaweah or the Friant-Kern Canal. As Mill Creek passes through the City, it collects storm water along with two minor NPDES discharges consisting of non-contact cooling water from the Visalia Medical Clinic (WDRs Order No. 97-119, NPDES No. CA0080900) and from Kraft, Inc. (WDRs Order No. 97-122, NPDES No. CA0081256). Even with the various inflows, Mill Creek is usually dry upstream of the WWTF, and hence, is an effluent-dominant water. When the City's discharge is the sole source of water in Mill Creek, effluent will extend some 5000 feet upstream of Discharge 001 due to Mill Creek's gradual slope. This "backwater" condition does not qualify as upstream water. Mill Creek's alignment in reaches containing effluent parallels several major roads and is accessible to the public.

The City discharges to Mill Creek year-round except for about five weeks in the summer when Kaweah Delta Water Conservation District (District) conducts routine maintenance of the Mill Creek channel to maintain flood capacity or when Mill Creek capacity is limited during storm water, flood release, or irrigation delivery periods. From 2001 to 2005, the City discharged to Mill Creek 71% of the days. The City owns 160 acres about four miles west of the WWTF, which is occupied by four percolation ponds constructed for groundwater recharge. About one mile downstream along Mill Creek from Discharge 001, a diversion structure within Mill Creek allows the District to divert effluent-dominant Mill Creek flows to the City's percolation ponds. During most of the year, effluent-dominant flows in Mill Creek are diverted to these percolation ponds. Water not directed to the percolation ponds flows south in the Mill Creek channel and may occasionally reach Cross Creek several miles downstream. The District indicates water in Cross Creek occasionally flows to the Tulare Lake Bed, but that if the City's effluent reaches Cross Creek, it would likely flow only a short distance due to the size and dryness of the creek bed.

The California Department of Fish and Game (DFG) reports that Mill Creek did not historically support a warm water fishery. However, as Mill Creek conveys WWTF effluent effectively year-round, it has the potential to support warm freshwater aquatic habitat.

Land Use

Land use in the WWTF vicinity is primarily agricultural, and includes about 20 dairies within a couple miles north, west, and south of the WWTF. Residences in the area paralleling effluent-dominant reaches of Mill Creek are sparse and generally restricted to agricultural homesteads. Fodder crops of furrow-irrigated corn and border strip-irrigated alfalfa are the primary crops and irrigation methods, according

to DWR land use data. Farmers along Mill Creek with riparian water rights use creek water, when available, as an irrigation supply. The primary source of water in Mill Creek is the City's effluent, which meets the criteria of Disinfected Secondary-23 recycled water as defined in Title 22, California Code of Regulations (CCR), Section 60301.225. Accordingly, use of effluent to irrigate fodder crops is consistent with Title 22 recycling criteria. Owners of dairies also irrigate much of the land in the region with dairy wastewater. It is unknown the extent to which area crops are irrigated with a combination of effluent-dominant Mill Creek flows and dairy wastewater.

Groundwater

Regional first-encountered groundwater flows west-southwesterly and occurs about 80 to 90 feet bgs, according to information in *Lines of Equal Depth to Water in Wells, Unconfined Aquifer*, published by DWR in Spring 2000. The E-clay exists about 240 to 275 feet bgs and separates groundwater of marginal quality from high quality groundwater found beneath the E-clay. The City has identified the area as containing three different aquifers: (1) the first-encountered, shallow groundwater, (2) the upper aquifer resting on top of the E-clay where the majority of the water supply wells in the area are completed, and (3) the lower aquifer found beneath the E-clay.

The Discharger monitors groundwater quality in the WWTF vicinity through an extensive network of groundwater monitoring wells. In 1986, the Discharger installed five groundwater monitoring wells (MW-A, MW-B, MW-C, MW-D, and MW-E) to depths from 30 to 60 feet bgs. At that time, the Discharger used the disposal ponds to dispose of about half the effluent flow, causing groundwater to mound beneath the ponds. With the lowering of the regional groundwater table that occurred throughout the San Joaquin Valley from the 1987 - 1992 drought, all but MW-B have been dry from 1992 and MW-B has been dry since about 1993. In 1992, the Discharger installed MW-F, MW-G, and MW-H, upgradient, on-site, and downgradient of the WWTF. These wells were installed to about 100 to 110 feet bgs. MW-F, about one mile northeast of the WWTF, is adjacent to a ditch that conveys surface water for irrigation. Water quality data from this well indicates that it extracts high quality percolated surface water, which is not representative of regional groundwater. A monitoring well at a more appropriate location to establish regional background groundwater quality has not yet been installed.

To comply with the CDO No. 97-062, the Discharger installed ten additional groundwater monitoring wells in November and December 1997. At three locations, the Discharger installed nested wells to obtain samples of first-encountered groundwater, groundwater just above the E-clay, and groundwater below the E-clay. The Discharger monitored the various depths at the three locations to establish the vertical extent of degradation. The other two wells were installed in first-encountered groundwater to further delineate the lateral extent of high EC impacted groundwater. Table 3 identifies the Discharger's monitored wells (wells MW-A, -C, -D, and -E are not included since they have been dry since about 1993).

TABLE 3
GROUNDWATER MONITORING WELLS

Monitoring Well	Perforation (ft bgs)	Location
MW-B	13.3-33.3	Near southeast corner of WWTF disposal ponds, west of unlined sludge pit

TABLE 3
GROUNDWATER MONITORING WELLS

Monitoring Well	Perforation (ft bgs)	Location
MW-F	77.8-107.8	About 1 ½ miles northeast (upgradient) of WWTF
MW-G	67.8-97.8	Near southwest corner of WWTF
MW-H1[1]	79.9-109.9	About 2 miles southwest (downgradient) of WWTF
MW-H2[1]	240-250	(Same as H1)
MW-H3[1]	295-305	(Same as H1)
MW-J1[1]	102-122	Centrally along west WWTF boundary
MW-J2[1]	225-235	(Same as J1)
MW-J3[1]	268-278	(Same as J1)
MW-K1[1]	106.1-116.1	About ½ mile south southwest of WWTF
MW-K2[1]	242.1-247.1	(Same as K1)
MW-K3[1]	269.1-274.1	(Same as K1)
MW-L	79.8-99.8	About ½ mile west northwest of WWTF
MW-M	84.8-104.8	About 1 ½ miles southwest (downgradient) of WWTF

[1] Nested wells at the same location. Wells identified with a '1' sample first-encountered groundwater. Wells identified with a '2' sample groundwater just above the E-clay. Wells identified with a '3' sample groundwater just beneath the E-clay.

The 30 January 1998 *Groundwater Investigation Report* (Report), by Boyajian & Ross, Inc., pursuant to the CDO, identified a mound of degraded groundwater about 20 feet in height centered beneath the WWTF's disposal ponds. Regional agricultural and domestic supply wells were sampled along with the groundwater monitoring wells. The Report characterized the mound beneath the WWTF through wells MW-G and MW-J1 having EC greater than 1,000 µmhos/cm, chloride above 110 mg/L and sulfate greater than 50 mg/L. The Report indicates a nitrate (as N) concentration of about 7 mg/L beneath the WWTF and identifies nitrate plumes centered beneath nearby dairies with concentrations up to 57 mg/L. The Report proposed to pump agricultural supply wells located at the WWTF margin to hydraulically control the highest concentrations of effluent-derived dissolved salts in the upper aquifer. Pumped groundwater would be discharged to either Mill Creek or the Use Area for irrigation of the walnut orchard. Since the Report's submittal, pumping of agricultural supply wells in the WWTF vicinity appears to have hydraulically controlled the highest concentrations of effluent-derived dissolved salts in the upper aquifer.

The Discharger submitted its *Spring 2006 Groundwater Monitoring Report* (Spring 2006 Report), dated 19 June 2006, that includes semiannual data from spring of 2006. The Discharger also submitted its *Fall 2004 Groundwater Monitoring Report* (Fall 2004 Report), dated 14 March 2006, that includes semiannual data from spring and fall 2004, and spring and fall of 2003. Spring 2006 data are from the Spring 2006 Report and Spring and fall 2002 data are from the Dischargers Fall 2003 Report. MW-A, MW-C, MW-D, and MW-E were dry during each of the sampling events. MW-B contained sufficient water for sampling only during the fall 2002 sampling event and spring of 2006 sampling event. The Discharger analyzed groundwater samples for the following water quality parameters: pH, EC, total dissolved solids, bicarbonate, calcium, carbonate, chloride, fluoride, iron, lead, magnesium, nickel,

nitrate, phosphorous, potassium, sodium, sulfate, total coliform, and chloroform. Table 4 shows the EC, chloride, and nitrate groundwater data. Data from wells sampled just above and below the E-clay have been averaged to conserve space since the reported values appear consistent over time.

TABLE 4
GROUNDWATER MONITORING DATA

Well No.	Sample Date	EC (µmhos/cm)	Chloride (mg/L)	Nitrate-N (mg/L)
First-Encountered Groundwater				
MW-B	4/24/06	720	68	47
	4/18/02	1,200	61	68
MW-F	4/25/06	460	6.9	<2
	4/7/03	460	9	3
	10/30/02	460	7	<1
	4/17/02	430	10	<1
MW-G	4/25/06	1200	75	110
	10/26/04	Dry	Dry	Dry
	5/14/04	910	44	13
	10/22/03	870	39	11
	4/9/03	1,000	29	10
	10/30/02	730	20	12
	4/17/02	760	22	2.5
MW-H1	4/25/06	1200	91	200
	10/27/04	1,200	89	170
	5/14/04	1,100	--	230
	10/21/03	1,400	91	220
	4/8/03	1,300	98	200
	11/1/02	1,200	94	190
	4/18/02	1,200	98	47
MW-J1	4/25/06	800	70	55
	10/26/04	730	67	19
	5/13/04	760	--	48
	10/22/03	830	59	47
	4/9/03	830	68	33
	11/1/02	690	58	12
	4/17/02	740	65	5.7
MW-K1	4/25/06	530	29	6.1
	10/27/04	520	27	6.1
	5/14/04	520	25	6.3
	10/21/03	570	28	8
	4/7/03	590	28	9
	10/30/02	580	28	9

TABLE 4
GROUNDWATER MONITORING DATA

Well No.	Sample Date	EC (µmhos/cm)	Chloride (mg/L)	Nitrate-N (mg/L)
	4/18/02	660	36	2.9
MW-L	4/25/06	1000	55	150
	10/27/04	1,100	51	130
	5/14/04	1,100	64	210
	10/22/03	1,000	44	120
	4/9/03	1,000	43	130
	11/1/02	1,000	43	130
	4/17/02	970	35	29
MW-M	4/25/06	600	49	18
	10/27/04	620	46	15
	5/14/04	610	52	14
	10/21/03	630	51	16
	4/8/03	600	53	18
	10/30/02	640	51	21
	4/18/02	930	86	12
Groundwater Just Above E-Clay (Average of all samples)				
MW-H2		354	34	45
MW-J2		802	98	45
MW-K2		483	84	15
Groundwater Just Below E-Clay (Average of all samples)				
MW-H3		140	3.5	<1
MW-J3		120	3.9	<1
MW-K3		123	3.9	1.34

The Discharger measured depth to groundwater during each sampling interval and used the data to determine groundwater elevations and create hydrographs and groundwater elevation contour maps. Groundwater data from its Fall 2004 and Spring 2006 Reports show that since the Discharger now only intermittently discharges to the disposal ponds, the groundwater mound beneath the WWTF has subsided and the regional groundwater flow direction has reestablished to the west-southwest. The Discharger's Spring 2002 Report shows impacts to the groundwater table from effluent discharged to the disposal ponds. A groundwater elevation contour map of the data showed a mound beneath the disposal ponds and for the first time since about 1993, the Discharger was able to collect a sample from MW-B. Groundwater monitoring wells capturing first-encountered groundwater passing under the WWTF are MW-B (occasionally), MW-G, MW-J1, and MW-K1. MW-H1 and MW-L are located near confined animal facilities and reflect water quality adversely impacted by those facilities (e.g., groundwater EC exceeds 1,000 µmhos/cm and nitrate (as N) exceeds 100 mg/L).

The Discharger's 2003, 2004, and 2006 groundwater data indicates a significant reduction in the plume of high salinity groundwater as delineated in the Discharger's 30 January 1998 report. MW-G at the

southeast end of the WWTF, which detected EC as high as 1,300 µmhos/cm and chloride above 120 mg/L in 1992, now has EC and chloride of about 1200 µmhos/cm and 75 mg/L, respectively. MW-J1 along the west edge of the WWTF showed a decrease in EC and chloride in groundwater from 1,100 to 800 µmhos/cm and from about 120 to 70 mg/L, respectively. While impacts to groundwater from high salinity discharges have decreased at MW-J1, nitrate concentrations (as N) have significantly fluctuated from 5.7 mg/L on 17 April 2002 to a high of 55 mg/L on 4/25/06. The data suggests that groundwater passing under the WWTF (including its unlined sludge handling facilities) is degraded. MW-K1, along the west side of the Use Area southwest of the WWTF, evidenced similar reductions (EC from 950 to 530 µmhos/cm and chloride from 90 to about 29 mg/L). MW-M, about one mile southwest of the WWTF, also showed similar reductions (EC from 900 to 600 µmhos/cm).

The Discharger's MW-B April 2002 sample indicated salt degradation (EC of 1200 µmhos/cm, TDS of 890 mg/L, chloride of 61 mg/L, and potassium of 21 mg/L) and nitrate pollution (nitrate-nitrogen of 68 mg/L). MW-B The City has not determined with certainty the sources of waste constituents causing groundwater pollution. The salt degradation could reflect residual salt in the soil beneath the ponds. The high nitrate is not characteristic of WWTF effluent, could be the result of past disposal of grease trap wastes in one disposal pond, the use of unlined sludge pits and drying beds east of the well, and/or agricultural practices in the area. Data from additional samples and samples obtained from newly installed wells would clarify the source of this waste constituent.

Groundwater quality data from wells sampling groundwater just above the E-clay (those with a "2" identifier, e.g., MW-J2) indicate a much higher quality than that of the first-encountered groundwater, with EC ranging from 353 to 822 µmhos/cm, chloride from 31 to 101 mg/L, and nitrate from 14 to 45 mg/L. The groundwater quality beneath the E-clay (as determined through wells with a "3" identifier, e.g., MW-J3) is of exceptional high quality with average EC, chlorides, and nitrate-nitrogen of 133 µmhos/cm, 3.7 mg/L, and <1 mg/L, respectively.

BENEFICIAL USES OF RECEIVING WATERS

Water Quality Control Plan for the Tulare Lake Basin, Second Edition), (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet, at a minimum, the maximum contaminant levels (MCLs) for drinking waters adopted by the California Department of Health Services. The Basin Plan sets forth the applicable beneficial uses (e.g., agricultural, warm freshwater habitat, noncontact water recreation, etc.), procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity. The Basin Plan also incorporates by reference certain plans and policies of the State Water Resources Control Board (State Water Board). Chief among the State Water Board's policies for water quality control is State Water Board Resolution No. 68-16, a *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (hereafter Resolution 68-16 or State "Antidegradation" Policy). It requires that, wherever the existing quality of surface waters or groundwaters is better than the objectives established for those waters, the existing quality will be maintained unless as otherwise provided by Resolution 68-16 or any revisions thereto.

California Department of Health Services (DHS), which has primary state-wide responsibility for protecting public health, has established statewide criteria in Title 22, California Code of Regulations (CCR), Section 60301 et seq., (hereafter Title 22) for the use of recycled water and has developed guidelines for specific uses. Title 22 is not directly applicable to surface waters.

Mill Creek is not specifically identified in the Basin Plan but addressed as a Valley Floor Water. The Basin Plan designates the beneficial uses of Valley Floor Waters as agricultural (AGR), industrial service (IND), industrial process supply (PRO); water contact and noncontact water recreation (REC-1 and REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); rare, threatened or endangered species habitat (RARE); and groundwater recharge (GWR). When the Regional Water Board incorporated State Water Board Resolution No. 88-63, Policy on "Sources of Drinking Water," it determined the surface waters within the basin with designated uses but without designation for MUN were not suitable or potentially suitable for municipal or domestic water supply.

The discharge comprises most of the flow in Mill Creek during much of the year to the point impounded in the percolation ponds, approximately four miles downstream from the WWTF. Thus, Mill Creek is generally dry downstream of the point where flow is diverted to the percolation ponds. This effectively precludes Mill Creek as a potential municipal or domestic water supply source and upstream migration of warm-water fish species from any warm-water fisheries downstream of Mill Creek. The record indicates DFG has determined that Mill Creek does not support rare and endangered species. Mill Creek has the potential to support and may have historically supported aquatic life like crayfish and frogs especially with recent conditions of high rate of sustained flow, and could potentially be planted with fish, though at present this is believed improbable. These uses are likely degraded due to the lethal effects of chlorine, and possibly of ammonia, in the effluent.

The State Water Board has recorded water rights to existing water users downstream of the discharge for irrigation uses. Mill Creek water downstream of the discharge point is currently used to irrigate fiber and fodder crops (e.g., pasture, Sudan grass, silage corn, wheat, oats, barley, and alfalfa). It has yet to be documented what other crops have the potential to be grown with water from Mill Creek. The record contains no evidence that Mill Creek water is utilized or likely to be utilized for industrial service or industrial process supply. Mill Creek downstream of the discharge point flows through areas where there is public access, but sparse habitation. While the record has no evidence of these uses occurring, the presence of water in a natural setting makes it probable that noncontact water recreation will eventually occur if it does not already.

Water conveyed in Mill Creek infiltrates along its reach and is diverted to the percolation basins that serve to recharge groundwater. The beneficial uses of area groundwater, as identified in the Basin Plan, are municipal and domestic supply, industrial service and process supply, and water contact recreation that serve to recharge groundwater.

Order No. 97-061, Finding No. 45, indicates the beneficial uses of Mill Creek downstream of and west of the WWTF as aesthetics, agricultural supply, wildlife habitat, and groundwater recharge (REC-2, AGR; WILD and GWR, respectively). These beneficial uses differ from the Basin Plan's designated beneficial uses as previously indicated above by the elimination of IND, PRO, REC-1, WARM, and RARE. The Regional Water Board applied the above indicated beneficial uses in Order No. 97-061, because at that time, the Regional Water Board could apply judgment: (1) for tributaries to water bodies

identified in the Basin Plan, in cases where a beneficial use is not applicable to the entire body of water; and (2) for unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis (See Basin Plan, page II-2). In applying the beneficial uses in Order No. 97-061, the Regional Water Board's judgment was based on available information at that time including information provided by DFG, as previously indicated above.

Precedential State Water Board Order No. WQ2002-0015 (Vacaville Order) provides guidance on implementing the Basin Plan, particularly the protection of beneficial uses as designated in an effluent dominated water body where actual and probable uses warrant re-evaluation. Some of the issues addressed by the State Water Board Order may be relevant to the Visalia WWTF discharge. Specifically, the beneficial uses affecting the most stringent effluent limitations of this Order are the WARM and REC-1. Other designated beneficial uses, whether they exist or do not exist, are unlikely to change the effluent limitations of this Order. The Regional Water Board staff has determined that WARM and REC-1 designated beneficial uses are existing and probable beneficial uses. Therefore, Regional Water Board staff determined that the most stringent limitations in this Order are appropriate.

However, this Order provides guidance to the Discharger if it desires to challenge the Regional Water Board staff's determination. If the Discharger has or wishes to acquire information that indicate the REC-1 beneficial use does not exist in Mill Creek and is unlikely to be attained in the future in Mill Creek, the Discharger may provide the information to the Regional Water Board so that this beneficial use can be fully evaluated through a Use Attainability Analysis (UAA) and changed if appropriate. As State Water Board Order No. WQ2002-0015 makes clear the Discharger bears the responsibility for providing the information to support this evaluation. To the extent that beneficial use designation/dedesignation issue is relevant in this case, the Discharger should consider evaluating alternatives for the discharge to determine the most cost effective course of action (e.g., increased treatment, alternative methods of disposal, studies to support dedesignating beneficial uses, etc.).

Water Quality Objectives. The discharge must be conducted in a manner to ensure compliance with the Basin Plan's water quality objectives. These in turn define the least stringent limits that could apply as water quality limitations for receiving waters affected by the discharge. There are narrative and numeric objectives for surface water addressing bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Similarly, there are numeric and narrative water quality objectives for groundwater.

TITLE 27 EXEMPTION

Title 27, CCR, Section 20005 et seq. (Title 27), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. The discharge of sewage and effluent is covered by

regulations outside of Title 27. For these reasons, they have been conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under Section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. Discharges to land of this residual sludge and solid waste are subject to the provisions of Title 27.

Discharge to land of high-strength organic waste (e.g., digested sludge on unlined drying beds) may overload soils with nutrients and organics that can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (i.e., below 5) and reducing conditions, iron and manganese compounds in the soil can solubilize and leach into groundwater. Discharge of residual sludge to land may also lead to increases in groundwater alkalinity and hardness to concentrations that impair the water's beneficial uses and contribute to an overall increase in TDS. Overloading is preventable and does not constitute best practicable treatment and control as is required by Resolution 68-16. Elevated concentrations in groundwater compared to percolating effluent of dissolved iron and dissolved manganese, along with elevated alkalinity, and hardness are useful indicators to determine whether components of the WWTF with high-strength waste constituents, such as sludge handling facilities, are ineffective in containing waste.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan. This means, among other things, that degradation of groundwater must be consistent with Resolution 68-16 and in no case greater than water quality objectives.

PROPOSED ORDER TERMS AND CONDITIONS

The discharge has been occurring for years. Certain waste constituents in municipal wastewater are not fully amenable to waste treatment and control and it is reasonable to expect some impact on groundwater. The Regional Water Board cannot yet determine how much degradation can be justified as consistent with policy due to incomplete data and incomplete evaluation of treatment and control measures. Groundwater monitoring data at this site is insufficient to establish the most appropriate numeric receiving water limitations. In addition, as explained elsewhere in this information sheet, certain aspects of waste treatment and control practices can be improved and therefore cannot be justified as representative of BPTC (e.g., continued use of unlined sludge handling facilities, the lack of dechlorination, potential effluent ammonia toxicity, etc.).

During a 27 July 2006 meeting with Regional Water Board staff, the City expressed its intent to complete a facilities plan to examine, among others, the feasibility of cessation of discharge to Mill Creek, necessary revisions to its sludge treatment and handling facilities, and the need for effluent nitrification/denitrification. This Order requires the City to complete its facilities plan and address WWTF deficiencies

Further, the Discharger has not provided a definitive inventory of crops that are or could be grown in the area potentially affected by WWTF discharges, nor has it provided a detailed assessment of uses of surface and groundwater within the area potentially affected by the discharge. Following the completion of these studies, this Order can be reopened so this Regional Water Board can consider final numerical groundwater limitations.

Reasonable time is necessary to gather specific information about the facility and the site and the area affected by its discharges to make informed decisions on appropriate, long-term conditions of discharge. This Order requires the Discharger to assemble the technical information necessary for this Regional Water Board to determine the area potentially affected by the discharge, the controlling beneficial uses of water impacted by discharges, and to derive appropriate numerical groundwater quality objectives for the WWTF that comply with Resolution 68-16. In the interim, it would establish receiving water limitations that (a) temporarily and conditionally allow use of the full assimilative capacity of the aquifer affected by the discharge and (b) assure protection of the beneficial uses of groundwater pending the completion of specific tasks.

The proposed Order establishes discharge prohibitions, discharge specifications, recycling specifications, sludge specifications, pretreatment requirements, receiving water limitations, groundwater limitations, and requires the Discharger to comply with numerous provisions.

Provisions in the proposed Order requires the Discharger to:

- Implement dechlorination to eliminate the chlorine toxicity in Mill Creek currently caused by the discharge

- Complete a facilities plan that identifies modifications to the WWTF's sludge handling operations to preclude or minimize the release of waste constituents to groundwater and requires the City to cease discharge to Mill Creek or (1) implement permanent dechlorination and chlorine residual monitoring equipment, and (2) implement WWTF modifications to comply with effluent ammonia limits.

- Expand its groundwater monitoring program to evaluate the extent to which area groundwater has been degraded or polluted by

    - The long-term use of unlined sludge handling facilities

    - The unpermitted discharge of grease trap waste to onsite disposal ponds

    - The routine diversion of effluent-dominant Mill Creek flows to 160 acres of percolation ponds owned by the City.

    - Diversions to percolation ponds dedicated to groundwater recharge.

- Another provision would impose limitations and requirements to implement best practicable treatment or control.

DISCHARGE SPECIFICATIONS

Effluent limitations are based primarily on the Basin Plan. Further, federal regulations require that effluent limitations in NPDES permits must control all pollutants which are or may be discharged at a level which will cause or have the reasonable potential to cause or contribute to an in-stream excursion above any state water quality standard, including any narrative criteria for water quality (40 CFR 122.44(d)(1)(i)).

Flow. The proposed Order establishes a maximum discharge flow limitation of 20 mgd, as the discharge flow authorized by the proposed Order must be consistent with that examined through the CEQA process.

Conventional Pollutants. Pursuant to 40 CFR sections 133.102(a) and (b), the current Order requires, on a monthly average basis, a 85 percent removal efficiency or reduction to a concentration of 30 mg/L, whichever is more restrictive, of both BOD_5 and TSS. The current Order also prescribes effluent limitations of 45 mg/L each for weekly average BOD_5 and TSS. Regarding pH, the current Order prescribes an effluent limitation of not less than 6 or greater than 9. The proposed Order carries over the current Order's effluent limitations for conventional pollutants, but prescribes more restrictive pH limits (not less than 6.5 or greater than 8.3) to implement the Basin Plan's water quality objective for surface water pH.

Salinity (as EC). The current Order stipulates that the EC of the discharge not exceed the source water EC plus 500 µmhos/cm, or 1,000 µmhos/cm, whichever is more stringent. This limitation is prescribed by the Basin Plan and is necessary to ensure the Discharger adheres to best practicable control for salinity constituents.

Chloride. The current Order prescribes an effluent chloride limitation of 175 mg/L, which is derived from the absolute maximum in the Basin Plan. Effluent-dominant flows in Mill Creek are diverted to percolation ponds for groundwater recharge. Chloride is a conservative element that readily passes through the soil profile to groundwater. The chloride effluent limitation for Discharge 001 from the previous Order is carried over in this proposed Order.

Coliform. The current Order's effluent limitations for 7-day median and daily maximum total coliform organisms are 23 and 500 MPN/100 mL, respectively. A 4 August 2006 DHS confirms these limits are appropriate disinfection levels for discharges to Mill Creek based on identified downstream use patterns. The letter recommends disinfected secondary-23 recycled water as protective of known REC-1 intensity and AGR uses of Mill Creek, provided areas of public access are posted to discourage REC-1 uses and AGR uses are limited to fiber and fodder crops. This Order provides a reopener that allows this Regional Water Board to reconsider these limits in the event future information reveals significant REC-1 use of Mill Creek or that Mill Creek water is used to irrigate food crops.

Oil and Grease. The current Order does not include effluent limitations for oil and grease. Staff recommends the Regional Water Board prescribe monthly average and daily maximum oil and grease effluent limitations of 10 and 15 mg/L, respectively. These proposed effluent limitations have proven achievable by dischargers (Cities of Merced, Stockton, and Vacaville), reflect BPTC, and been demonstrated to achieve receiving water criterion in similar NPDES discharge situations (e.g., Cities of Merced and Vacaville). Discharger monitoring data since 1997 indicates the discharge's oil and grease concentration is typically below 5 mg/L.

No Available Dilution in Effluent Limitation Determination. In determining whether a discharge has the reasonable potential to contribute to an in-stream excursion above any State water quality standard, including any narrative criteria, the dilution of the effluent in the receiving water may be considered where areas of dilution are defined. The available dilution may also be used to calculate protective effluent limitations by applying water quality criteria at the edge of the defined mixing zone. These calculations include receiving water pollutant concentrations that are typically based on worst-case conditions for flow and concentration. If limited or no dilution is available, the effluent limitations are set equal to the applicable water quality criteria that are applied at the end-of-pipe so the discharge will not cause the receiving stream to exceed water quality objectives established to protect beneficial uses. According to Discharger monitoring data, the worst-case condition for flow in Mill Creek has no dilution at the point of discharge. Consequently, dilution was not considered in determining reasonable potential. The Order, as proposed, establishes effluent limitations as applicable water quality criteria end-of-pipe limits.

Toxicity Receiving Water Limitation and Chronic Toxicity Testing. The proposed Order requires chronic toxicity testing consistent with current USEPA procedures (i.e., as specified in EPA/821/R-02/013). USEPA recommends conducting chronic toxicity testing if the dilution of the effluent is less than 100:1 (receiving water : effluent). Flow in Mill Creek is currently not monitored. Flows upstream of the WWTF exist only during significant storm water runoff or during periods of flood releases and irrigation deliveries from Lake Kaweah. Further, Kaweah-Delta Water Conservation District staff have indicated that an agreement between the City and the District requires that when there are flood flows in Mill Creek, discharges from the WWTF will be directed either to Discharge 002 (Use Area) or 003 (disposal ponds); thereby eliminating most periods when dilution would be available. The monitoring and reporting program requires monitoring for acute toxicity and chronic toxicity. Chronic toxicity testing is required to determine whether chemicals in the wastewater are toxic. Results of the toxicity reduction evaluation, if one is required, will then allow Regional Water Board staff to establish effluent limitations for pollutants that may cause or may have reasonable potential to cause toxicity in the wastewater.

Determining Reasonable Potential. USEPA's National Ambient Water Quality Criteria recommends limitations to protect against toxicity. Toxicity based water quality criteria have been promulgated by USEPA on inland surface waters of California in the National Toxics Rule (NTR) and California Toxics Rule (CTR). Toxicity based water quality limits are also published by other agencies, such as DHS and Office of Environmental Health Hazard Assessment (OEHHA). Staff reviewed these criteria to derive numeric limitations to protect the receiving stream from toxicity. Staff recommends the Regional Water Board not prescribe effluent limitations for priority pollutants based on the CTR's criterion of human consumption of water and organisms because the Basin Plan does not designate the beneficial use of

municipal and domestic supply to Valley Floor Waters such as Mill Creek. Waters in Mill Creek recharge groundwater, which has the designated use of municipal and domestic supply. It is likely, however, that the concentration of priority pollutants in the discharge will attenuate as the discharge percolates through the soil profile. This attenuation will likely decrease the concentrations of priority pollutants in the discharge to levels that are protective of groundwater. The proposed Order's groundwater limitations include a narrative toxicity limit. It requires effluent, surface receiving water, and groundwater monitoring for priority pollutants and has a provision that allows the Regional Water Board reopen the Order and establish effluent limitations for priority pollutants should monitoring data indicate these pollutants are present in concentrations exceeding the CTR criteria for human consumption of water and organisms.

The Discharger has completed its quarterly priority pollutant monitoring pursuant to the Regional Water Board's Section 13267 letter dated 27 February 2001. Table 5 below shows the priority pollutants detected in at least one quarterly sampling interval.

TABLE 5
PRIORITY POLLUTANT MONITORING

Pollutant No.	Contaminant	Sample Date	Result (µg/L)	MDL (µg/L)
5a	Chromium (III)	4/12/2001	2.0	0.1
		7/10/2001	2.0	0.1
		10/9/2001	2.0	0.1
		1/7/2002	0.2	0.1
5b	Chromium (VI)	4/12/2001	ND	0.2
		7/10/2001	ND	0.2
		10/9/2001	ND	0.2
		1/7/2002	1.8	0.2
8	Mercury (Hg)	4/12/2001	0.00428	0.0002
		7/10/2001	0.0101	0.0002
		10/9/2001	0.0258	0.0002
		1/7/2002	0.0041	0.0002
10	Selenium (Se)	4/12/2001	ND	0.5
		7/10/2001	3.0	0.5
		10/9/2001	ND	0.5
		1/7/2002	ND	0.5
26	Chloroform	4/12/2001	5.2 DNQ[1]	0.160
		7/10/2001	2.18 DNQ[1]	0.160
		10/9/2001	5.9	0.160
		1/7/2002	1.89 DNQ[1]	0.160
39	Toluene	4/12/2001	ND	0.191
		7/10/2001	0.58 DNQ[1]	0.191
		10/9/2001	ND	0.191
		1/7/2002	0.66 DNQ[1]	0.191
68	Bis(2-Ethylhexyl) Phthalate	4/12/2001	53	4.044
		7/10/2001	ND	4.044
		10/9/2001	ND	4.044

TABLE 5
PRIORITY POLLUTANT MONITORING

Pollutant No.	Contaminant	Sample Date	Result (µg/L)	MDL (µg/L)
		1/7/2002	ND	4.044
84	Di-n-Octyl Phthalate	4/12/2001	32	0.934
		7/10/2001	ND	0.934
		10/9/2001	ND	0.934
		1/7/2002	ND	0.934

[1] Detected, but Not Quantified

Regional Water Board staff conducted a Reasonable Potential Analysis (RPA) of the priority pollutant sampling results following the State Water Board's 2005 *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (hereafter SIP) instructions. The RPA (Attachment D) indicates that the discharge has a reasonable potential to cause a human health (one in a million cancer) risk for consumption of organisms for Bis(2-Ethylhexyl)Phthalate. The Regional Water Board staff considers this RPA for Bis(2-Ethylhexyl)Phthalate to be inadequate as explained below.

The Discharger requested Regional Water Board staff perform an RPA for Bis(2-Ethylhexyl)Phthalate using additional data from yearly priority pollutant monitoring performed as part of the Discharger's industrial pretreatment program. Three different scenarios were analyzed to determine whether there was reasonable potential for Bis(2-Ethylhexyl)Phthalate to exceed water quality criteria of 5.9 µg/L (human health risk for consumption of organisms). If a reasonable potential is determined for a pollutant using the procedures in the SIP, appropriate effluent limits for that pollutant are required. Because this discharge has no dilution credits, the monthly average effluent limit for that constituent is determined using the direct water quality criteria (5.9 µg/L). The daily maximum effluent concentration is based on a statistical analysis of the available data. This analysis consists of calculating the covariance (CV) or the "spread" of the dataset. The SIP requires that a CV of 0.6 be used to calculate the daily maximum limit if (a) the number of effluent data points is less than ten, or (b) at least 80 percent of the data are reported as nondetect. All of the scenarios below fall into one of these two categories.

The following discussion concerns whether there is reasonable potential and the need for effluent limits - not the numerical limits themselves. The following is a description of each scenario and the determination of reasonable potential using the procedures set forth in the SIP. The full analysis is shown in Attachment E. The footnotes provide an explanation of how reasonable potential was determined.

Scenario No.	Description	Reasonable Potential? (Y/N)
1	Data from 1990 through January 2002	Y[1]
2	Data from 2001 through January 2002	Y[1]
3	Data from 1990 through January 2002 without the 4/12/01	Y[2, 3]

datum (53 µg/L)

---

[1] The maximum pollutant concentration for the effluent (MEC) is greater than the water quality criteria (53 µg/L>5.9 µg/L)

[2] All laboratory test results were reported non-detect. However, the reported detection limit of two of the 14 laboratory tests exceeded the water quality criteria of 5.9 µmhos/cm.

[3] Since 14 of the 15 samples tested non-detect, the 4/12/01 test results appear to be an anomaly.

The RPA for the first two scenarios above show reasonable potential for Bis (2-Ethylhexyl) Phthalate to cause or contribute to an exceedance of water quality criteria for that pollutant due to the MEC of 53 µg/L, which exceeds the WQC of 5.9 µg/L.

In the third scenario, the 12 April 2001 sample result was 53 µg/L. This sample result is considered to be not valid (perhaps due to laboratory error and not an indication of pass through) and therefore not a representative sample. In accordance with Section 1.2 of the SIP, only representative samples shall be considered when conducting the RPA. Therefore the 12 April 2001 was disregarded for the RPA since it was a non-representative sample. The third scenario appears to be the most likely scenario, therefore no reasonable potential exists for Bis(2-ethylhexyl)phthlate, and no effluent limits have been established in this Order. However, this Order requires additional monthly monitoring for at least six months at the required detection limits to verify the absence of Bis(2-ethylhexyl)phthlate.

Regional Water Board staff also conducted the RPA for lead, not only with CTR monitoring data submitted pursuant to the Section 13267 letter dated 27 February 2001, but also with data submitted pursuant to the current Order. Like the RPA for bis(2-ethylhexyl)phthlate, Regional Water Board staff considers the RPA for lead to be inadequate due to insufficient data as explained below.
This Order includes the designated beneficial use of WARM for Mill Creek. Water quality criteria to protect aquatic life are more stringent than the current limitations for protecting human health (consumption of organisms). Lead WQC vary with the hardness of the receiving water. Based on the current average hardness of the discharge of 100 mg/L (as $CaCO_3$), the WQC for lead are 3.2 µg/L for a criteria continuous concentration (CCC)(a four-day average) and 82 µg/L for a criteria maximum concentration (CMC)(a one-hour average) as total recoverable lead. Because the current permit includes lead effluent limitation and monitoring requirement, Regional Water Board staff considered including the lead monitoring data submitted pursuant to the current permit in conducting the RPA to provide a more accurate RPA result. The Regional Water Board staff reviewed the lead test results for the last six years (2000 and 2005). All lead sample results submitted pursuant to Order No. 97-061 have been reported as "less than 0.005 mg/L," and reporting detection limit of 0.005 mg/L (equivalent to 5 µg/L). The reported detection limit does not meet the SIP required minimum level of 0.5 µg/L. Therefore this Order requires continued effluent monitoring for lead. The effluent limitation for lead from the previous Order remains in place since the Discharger has not conclusively shown the absence of lead in its effluent.

Ammonia. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification and

denitrification processes to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. The WWTF effluent contains a greater proportion of organic nitrogen (TKN) indicating incomplete nitrification. The RWD includes three effluent results for ammonia: 8 mg/L, 8 mg/L, and 6 mg/L. The Basin Plan states, "In no case shall the discharge of wastes cause concentrations of un-ionized ammonia (NH3) to exceed 0.025 mg/l (as N) in receiving waters." Given there is no dilution in Mill Creek, effluent containing these concentrations of ammonia when it comprises flow to Mill Creek will have the reasonable potential to cause an exceedance of the Basin Plan water quality objective for ammonia. This Order implements a daily maximum effluent limit for ammonia of 0.025 mg/L. As Order No. 97-061 did not protect WARM and the WWTF discharge has not previously been regulated for ammonia, it is appropriate to include an interim limit for ammonia.

When there are less than ten sampling data points available, the *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2). This Order includes a performance based interim ammonia limit of 25 mg/L and, if the City chooses not to cease discharge to Mill Creek, a compliance schedule to meet at minimum the Basin Plan objective.

USEPA's Ambient Water Quality Criteria contain limitations for ammonia that reflects concentrations protective of fish and other aquatic species. The Department of Fish and Game reported once that Mill Creek does not support a fishery and was not expected to do so in the future. However, this determination was made based on the intermittent and ephemeral flow conditions in Mill Creek prior to 1996, when the City initiated its year round discharge. Now that Mill Creek from the point of the City's discharge sustains a relatively constant flow for most of the year, it is reasonable to expect the current flow conditions capable of attaining and maintaining some degree of warm freshwater and wildlife habitat. Since USEPA does not provide acute ammonia toxicity criteria for nonfish aquatic species, a daily maximum ammonia effluent limitation that exceeds USEPA's acute ammonia toxicity criteria for fish may still be adequately protective of aquatic life in Mill Creek. Additionally, a monthly average ammonia effluent limitation that exceeds USEPA's chronic ammonia criteria may still be adequately protective of aquatic life in Mill Creek. The proposed Order includes a provision for the City to study the impacts of ammonia on Mill Creek and allows the City to recommend an adequately protective ammonia effluent limit for Mill Creek based on the types of aquatic species that occur or may occur in Mill Creek and what level of ammonia is toxic to these species.

Residual Chlorine. The current Order does not prescribe an effluent limitation for chlorine residual. This is explained in Finding No. 35 of the current Order:

> "The California Department of Fish and Game (DFG) reports that Mill Creek is not a warm water fishery and is not expected to support a fishery in the future. DFG also reports that Mill Creek does not support rare and endangered species. Therefore, chlorine residual of the effluent is not limited in this Order."

In re-evaluating this issue, Regional Water Board staff observes that aquatic life in a warm fresh water habitat is not restricted to fish and rare and endangered species. Accordingly, to protect Mill Creek's beneficial use for warm water habitat, it is necessary for chlorine not to be present in concentrations that are toxic to aquatic life. The USEPA's recommended criteria for chlorine is below the detection limit for tests approved by USEPA identified in 40 Code of Federal Regulations, section 136.3, Table IB. The proposed Order requires effluent discharged to Mill Creek to not contain chlorine in concentrations exceeding the detection limit achievable by these methods. As the Discharger has not been required to dechlorinate its effluent pursuant to the current Order, the proposed Order includes a provision for the Discharger to install a dechlorination system within six months of adoption of the proposed Order, at which time, the chlorine residual effluent limitation will become effective. Should the Discharger choose to continue discharge to Mill Creek following completion of its facilities plan, this Order requires it to install permanent dechlorination units and appropriate continuous chlorine residual monitoring systems.

Phenol. The effluent limitation for phenol in the current Order was prescribed in previous Orders as a result of discharges by Southern California Edison (SCE) from a project to cleanup groundwater contaminated by a SCE pole yard. The Discharger indicates that it has analyzed 130 effluent samples for phenol since 1997 and all have been nondetect, except one that registered 0.015 mg/L. The Discharger regulates SCE and its discharge of treated groundwater as a Significant Industrial User and indicates its pretreatment monitoring of this discharge demonstrates SCE's treatment process is working effectively at reducing the concentration of phenol to nondetect. The proposed Order continues monitoring for this constituent to monitor the effectiveness of SCE's groundwater cleanup treatment process. The proposed Order requires the Discharger to include in its annual reports a discussion of the SCE's groundwater cleanup treatment performance and summary of phenol monitoring data. Removal of the effluent limit for phenol is consistent with 40 CFR 122.44(l)(2)(i)(B)(1) because the effluent samples collected since last permit was issued in 1997 represent information about the discharge that was not available at the time of the previous permit's issuance. The effluent samples collected since 1997 indicate that phenol is not present in the effluent.

Pentachlorophenol. The effluent limitation for pentachlorophenol in the current Order, like the limitation for phenol, was prescribed in previous Orders as a result of discharges by SCE from its pole yard groundwater cleanup project. The Discharger indicates that it has analyzed 137 effluent samples for pentachlorophenol since 1997 and all have been nondetect. The Discharger regulates SCE and its discharge of treated groundwater as a Significant Industrial User and indicates its pretreatment monitoring of this discharge demonstrates SCE's treatment process is working effectively at reducing the concentration of pentachlorophenol to nondetect. The proposed Order requires the Discharger to include in its annual reports a discussion of the SCE's groundwater cleanup treatment performance and summary of pentachlorophenol monitoring data. Removal of the effluent limit for pentachlorophenol is consistent with 40 CFR 122.44(l)(2)(i)(B)(1) because the effluent samples collected since last permit was issued in 1997 represent information about the discharge that was not available at the time of the previous permit's issuance. The effluent samples collected since 1997 indicate that pentachlorophenol is not present in the effluent.

RECEIVING WATER LIMITATIONS

The Regional Water Board is required, relative to surface water and the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Water Board need not authorize the full utilization of the waste assimilation capacity of the receiving waters (CWC Section 13263(b)) and must consider other waste discharges, factors that affect that capacity and effluent limits based on available technology. The Antidegradation Policy requires the maintenance of the existing high quality (i.e., "background") of surface waters and groundwaters unless a change in water quality can be found as "consistent with maximum benefit to the people of the State." Maintenance of the existing high quality of water means maintenance of "background" water quality conditions and defines the most stringent limits that could possibly apply in this situation. Water quality objectives define the least stringent limits that could apply as water quality limitations for receiving waters at this location, except where background quality unaffected by the discharge already exceeds the objective.

Receiving Water Limitations – Surface Water. Receiving Water Limitations D.1 through D.16 are water quality objectives direct from the Basin Plan. Receiving Water Limitation D.4 for chlorine residual becomes effective six months following Order adoption to allow the Discharger time to implement dechlorination.

Receiving Water Limitations – Groundwater. The proposed Order prescribes groundwater limitations that implement water quality objectives for groundwater from the Basin Plan in narrative form. The current Order's groundwater limitations stipulate that the discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations greater than background water quality, except for EC. The current Order allows for an incremental increase in EC over a five-year period of not exceeding 15 µmhos/cm. Regional background water quality has not been sufficiently characterized. The Discharger's "upgradient" groundwater data is from MW-F adjacent to an irrigation supply canal. Monitoring data from MW-F show that groundwater passing through the well reflects the high quality of surface water conveyed in the canal. Hence, data from MW-F is not representative of regional groundwater upgradient from the WWTF and to treat it as such could be punitive. Due to the location of the WWTF (at the eastern fringe of the San Joaquin Valley), the mineral quality of regional background groundwater is nevertheless expected to be of high quality (i.e., concentrations of mineral constituents in groundwater are below water quality objectives).

In contrast to the current Order, the proposed Order prescribes groundwater limitations that implement narrative water quality objectives. It also requires the Discharger to go through a process to establish more appropriate site-specific numeric groundwater limitations. Since the proposed Order implements existing objectives, the Regional Water Board need not undertake further consideration of the factors in CWC Section 13241 (including economic considerations).

The proposed Order requires the Discharger's groundwater monitoring well network include one or more background monitoring wells and sufficient number of wells to determine compliance with the proposed Order's groundwater limitations and evaluate performance of BPTC measures. These include monitoring wells forming a vertical line that extends from the soil surface into the uppermost layer of water in the uppermost aquifer immediately downgradient of representative treatment, storage, and disposal unit that does or may release waste constituents to groundwater. One or more wells will

monitor the quality of groundwater unaffected by the discharge and serve as 'background.' Other monitoring wells would be for determining compliance with the proposed Order's groundwater limitations. To comply, the Discharger would have to expand its current network to effectively monitor groundwater under certain WWTF features (unlined sludge handling facilities, disposal ponds), and 160-acre percolation pond area to which most effluent is diverted for groundwater recharge.

MONITORING AND REPORTING REQUIREMENTS

The proposed Order requires the Discharger to monitor WWTF influent and effluent at specific frequencies to evaluate compliance with effluent limitations and to monitor the receiving surface water upstream and downstream of the point of discharge to evaluate compliance with receiving water limitations. Where composited sampling of influent and effluent is warranted, the proposed Order requires the Discharger to composite on a flow-proportional basis. Because the Discharger does not currently have the ability to automatically collect flow-proportioned composite samples, the proposed Order does not implement this requirement for three years following Order adoption. The proposed Order also requires the Discharger to monitor sludge production and disposal operations, and to report on its pretreatment program activities.

The proposed Order requires influent monitoring of settleable solids, pH, EC, BOD_5, TSS, oil and grease, ammonia, TKN, and the following metals: aluminum, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. Effluent monitoring shall include settleable solids, pH, EC, chlorine residual, BOD_5, TSS, TCO, ammonia, nitrate (as N), nitrite (as N), TKN, total nitrogen, TDS, oil and grease, selenium, bis(2-ethylhexyl)phthalate, acute toxicity, general minerals, metals (same as influent), and priority pollutants. Effluent monitoring of these constituents is necessary to check compliance with various discharge specifications. The proposed Order requires the Discharger to characterize the discharge for constituents identified in Title 22, CCR, sections 64431 (Inorganic Chemicals including Fluoride); 64443 (Radioactivity); 64444 (Organic Chemicals); and 64449 (Secondary MCLs – Consumer Acceptance Limits). The proposed Order also includes surface water monitoring, chronic toxicity monitoring, pretreatment program monitoring, sludge monitoring, water supply monitoring, disposal pond monitoring, and groundwater monitoring. The monitoring is necessary to evaluate groundwater quality and the extent of the degradation and pollution from the discharge. The proposed Order includes monitoring of recycling activities to check compliance with Title 22 and the terms and conditions of the proposed Order.

The proposed Order continues the influent and effluent monitoring of all constituents that required monitoring in the previous Order, and adds influent monitoring for oil and grease, ammonia, and TKN, and adds effluent monitoring for ammonia, nitrite, TKN, TDS, selenium, bis(2-ethylhexyl)phthalate, acute toxicity, additional metals, minerals, Title 22 constituents, and priority pollutants; and adds chronic toxicity monitoring. The additional monitoring requirements are to develop a more accurate characterization of the discharge and its impacts on Mill Creek, while the addition of ammonia, nitrite, and TKN are to quantify the amount of nitrogen loading.

To determine if the Discharger is in compliance with Effluent Limitation B.7, the proposed Order requires the Discharger monitor its source water annually for EC and TDS, and for general minerals once every three years. To determine the efficiency of the Discharger's operation, the Discharger is required to monitor influent for settleable solids, pH, EC, BOD_5 and TSS, ammonia, TKN, and metals. In order to

adequately characterize its effluent, the Discharger is required to monitor continuously for chlorine residual and to sample for settleable solids, pH, EC, temperature, $BOD_{5,}$ TSS, total coliform organisms, ammonia, nitrate, nitrite, TKN, total nitrogen, oil and grease, TDS, lead, selenium, bis(2-ethylhexyl)phthalate, general minerals, metals, priority pollutants, chronic toxicity, and Title 22 constituents. The Discharger is required to monitor the receiving water for dissolved oxygen, pH, turbidity, temperature, EC, ammonia, un-ionized ammonia (as N), chlorine residual, hardness, lead, fecal coliform organisms, chronic toxicity, and priority pollutants. The proposed Order contains a trigger for chronic toxicity monitoring effective starting after the Discharger implements dechlorination. To monitor disposal ponds when in use for effluent disposal for capacity constraints and potential nuisance conditions, the Discharger would be required to monitor freeboard available and dissolved oxygen content on an "as required" basis since conditions of low dissolved oxygen in disposal ponds are not expected to occur because effluent BOD has historically been low.

The proposed Order requires the Discharger to monitor sludge in accordance with USEPA's *POTW SLUDGE SAMPLING AND ANALYSIS GUIDANCE DOCUMENT, AUGUST 1989*, and test for arsenic, cadmium, molybdenum, copper, lead, mercury, nickel, selenium, and zinc. The proposed Order requires the Discharger to submit an annual summary of sludge discharge and disposal operations.

The Title 27 zero leakage protection strategy relies heavily on extensive groundwater and unsaturated zone monitoring to increase a discharger's awareness of, and accountability for, compliance with the prescriptive and performance standards. With a high volume, concentrated, uncontained discharge to land, monitoring takes on even greater importance. The proposed Order includes monitoring of applied waste quality and groundwater.

Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The proposed Order requires the Discharger monitor groundwater for constituents present in the discharge that are capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate. As some groundwater limitations are based on background water quality, it is essential that the Discharger install wells in a location that can provide groundwater quality representative of the discharge area but unaffected by both the discharge and other waste sources. The proposed Order requires the Discharger to install such well(s) and characterize background water quality over a one-year period of quarterly groundwater sampling events. The proposed Order also requires the Discharger to propose a data analysis method for evaluating groundwater monitoring data. Once approved by the Executive Officer, the Discharger would be required to use the data analysis method to characterize background water quality and evaluate the extent to which the discharge affects groundwater quality.

The proposed Order requires the Discharger to submit in each annual report a list of crops irrigated with Mill Creek water in the past year. The Discharger would need to consult with farming entities that utilize Mill Creek water to compile the list. This requirement would ensure that the Regional Water

Board is informed as to changes in cropping patterns that might necessitate a higher degree of wastewater treatment (i.e., filtration).

REOPENER

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. It may be appropriate to reopen the proposed Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

ANTIDEGRADATION

The discharges permitted herein are consistent with the State Antidegradation Policy, Resolution 68-16:

a. The City of Visalia certified an Environmental Impact Report for the expansion of the WWTF and the increase in discharge flows to 20 mgd. The EIR finds that expansion of the WWTF is necessary to accommodate increased housing and economic growth in the Visalia area consistent with the City's General Plan. Economic growth benefits the people of the State.

b. This Order contains effluent limitations, discharge specifications and receiving water limitations that implement Basin Plan water quality objectives.

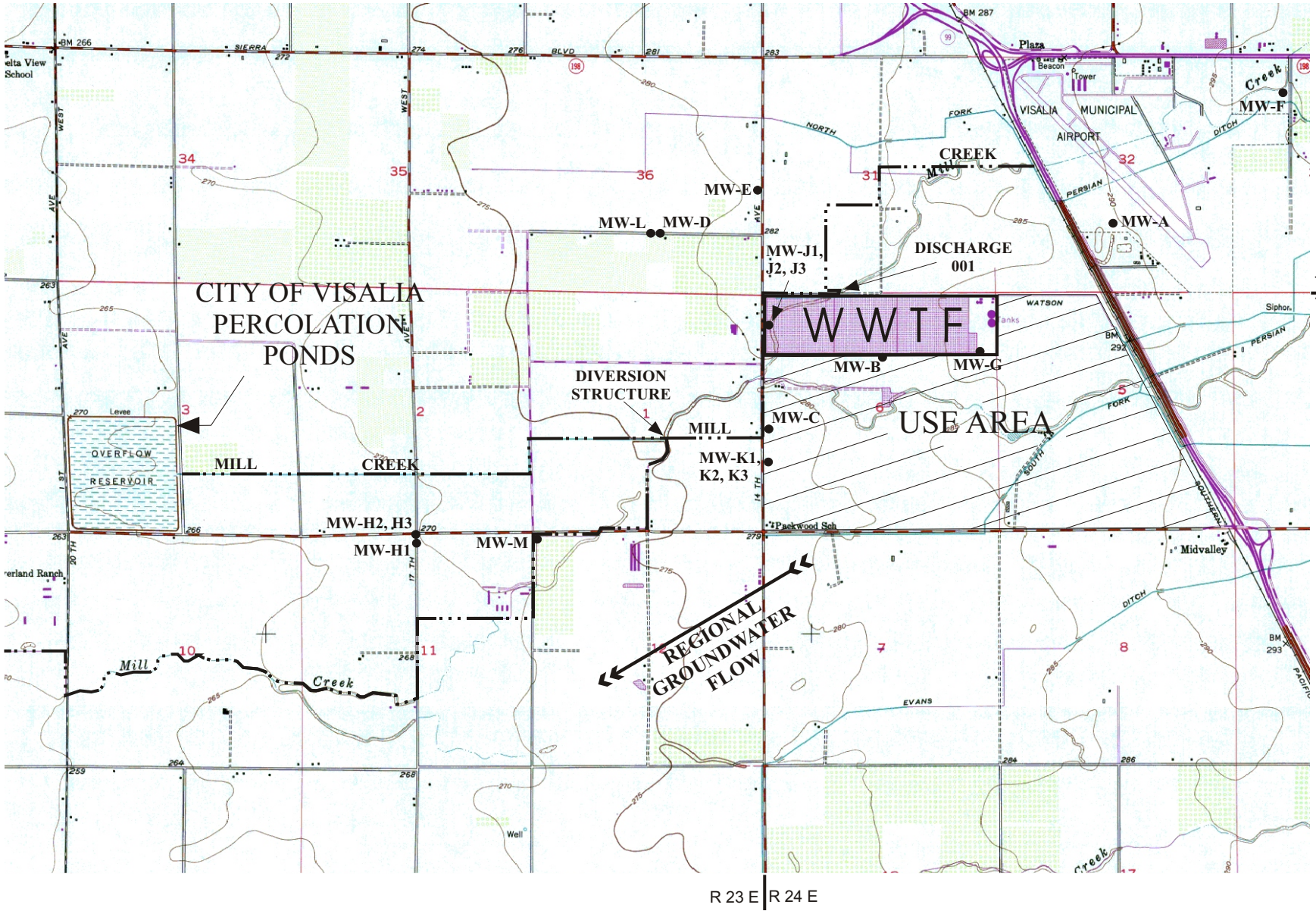
c. While this Order allows an increase in the Discharge mass of pollutants to Mill Creek, requirements are not dependent upon assimilative capacity in the receiving water. The effluent concentration limits are as stringent as, or in some cases more stringent than, those in WDRs Order No. 97-061 and will not result in quality in Mill Creek that would be less than previously found to be consistent with water quality policies.

CEQA

The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.), in accordance with CWC Section 13389.

In October of 1992, the Discharger certified a final Environmental Impact Report in accordance with the California Environmental Quality Act (Public Resources Code Section 21000, et seq.). Compliance with this Order will mitigate any impacts on water quality resulting from the increase in WWTF capacity.

GEA: 9/21/06



North

Scale: 1:24000

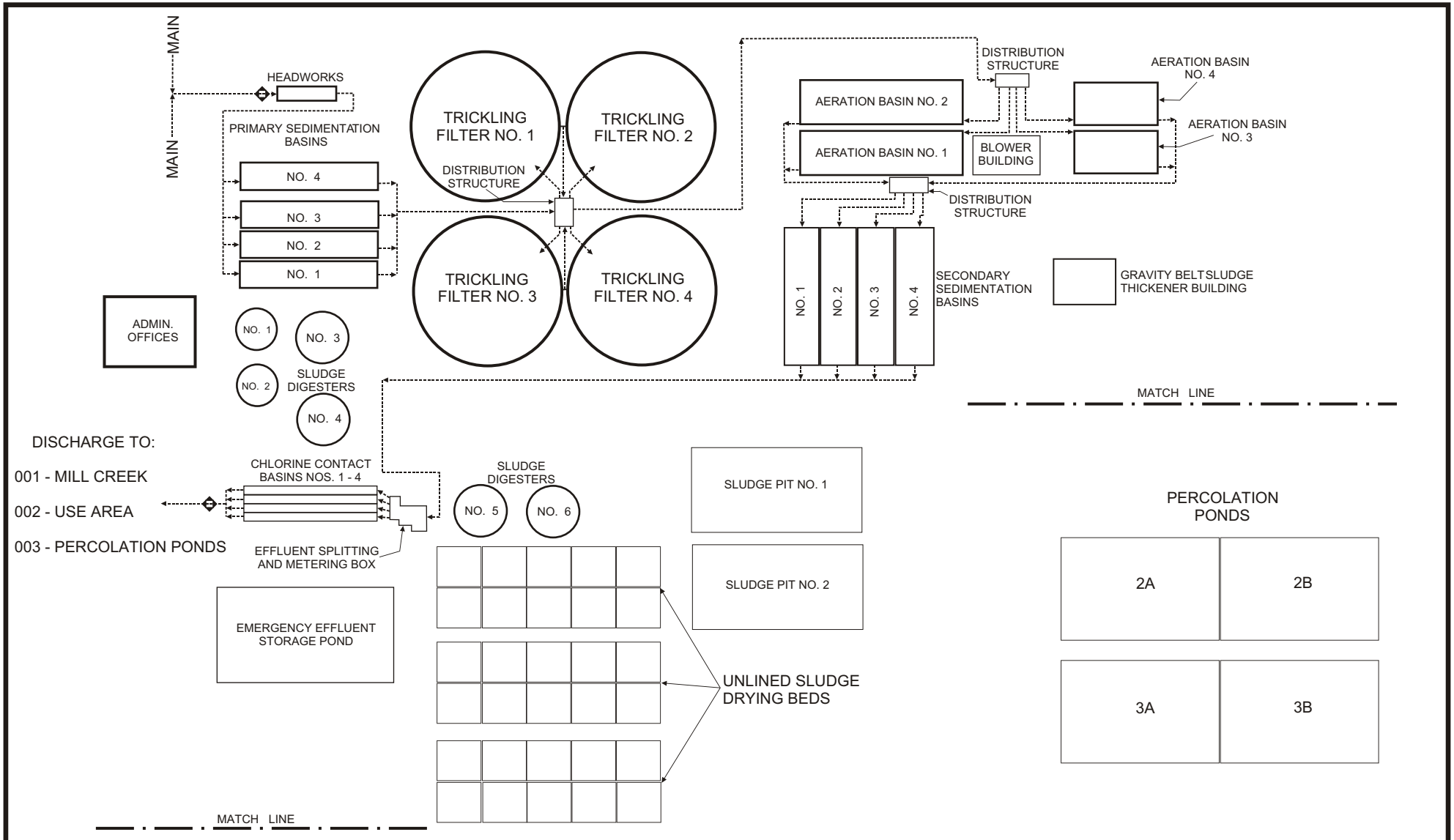
- **MW-A** Groundwater monitoring well
- **MW-J1, J2, J3** Nested wells monitor multiple groundwater elevations

Sections 5 and 6, T 19 S, R 24 E, MDB&M, Goshen 7.5' USGS Quad

ATTACHMENT A

VICINITY MAP AND MONITORING WELL LOCATIONS

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2006-0091
CITY OF VISALIA WASTEWATER TREATMENT FACILITY
TULARE COUNTY



ATTACHMENT B

SITE PLAN AND WASTEWATER FLOW SCHEMATIC

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2006-0091
CITY OF VISALIA WASTEWATER TREATMENT FACILITY
TULARE COUNTY

ATTACHMENT C

RECYCLED WATER SYMBOL

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2006-0091
CITY OF VISALIA
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

ATTACHMENT D
CALIFORNIA TOXICS RULE
REASONABLE POTENTIAL ANALYSIS

CITY OF VISALIA WWTF
TULARE COUNTY

RECEIVING WATER DATA

Constituent	Sb µg/L	As µg/L	Be µg/L	Cd µg/L	Cr Total µg/L	Cr (III) µg/L	Cr (VI) µg/L	Cu µg/L	Pb µg/L	Hg µg/L	Ni µg/L	Se µg/L	Ag µg/L	Tl µg/L	Zn µg/L	CN µg/L	Asb MF/L
CTR #	**#1**	**#2**	**#3**	**#4**		**#5a**	**#5b**	**#6**	**#7**	**#8**	**#9**	**#10**	**#11**	**#12**	**#13**	**#14**	**#15**
Date																	
No upstream flow at sampling events.																	
Observed Max SIP Section 1.4.3.1	0	0.0	< 0.00	0.00	0	0	0	0	0	0	0	< 0	0	< 0.00	0	< 0	0
Arithmetic Mean SIP Section 1.4.3.2																	
EFFLUENT DATA																	
4/12/2001	0.02	0.2	< 0.06	< 0.05	2.0	2.0	< 0.2	0.05	< 0.25	0.004	< 0.05	< 0.5	< 0.2	< 0.025	2.0	< 5.0	0.2
7/10/2001	0.02	0.2	< 0.06	< 0.05	2.0	2.0	< 0.2	0.05	< 0.25	0.010	< 0.05	3.0	< 0.2	< 0.025	2.0	< 5.0	< 0.2
10/9/2001	0.02	0.2	< 0.06	< 0.05	2.0	2.0	< 0.2	0.05	< 0.25	0.0258	< 0.05	< 0.5	< 0.2	< 0.025	2.0	< 5.0	< 0.2
1/7/2002	0.02	0.2	< 0.06	< 0.05	0.2	< 0.2	< 0.2	0.05	< 0.25	0.0041	< 0.05	< 0.5	< 0.2	< 0.025	2.0	< 5.0	< 0.2
MEC, total (mg/L)	**0.02**	**0.20**	**< 0.06**	**0.05**	**2.0**	**2.0**	**0.2**	**0.05**	**0.25**	**0.026**	**0.05**	**< 3.0**	**0.2**	**< 0.025**	**2.0**	**< 5.0**	**0.2**
Max Background, Tot	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.000**	**0**	**0**	**0**	**0**	**0**	**< 0**	**0**
CMC (µg/L) Freshwater **Total** @ 100 mg/L Hardness	-	340	-	4.52	-	1737	16	14.0	81.6	-	469	20	4.1	-	120	22	-
CCC (µg/L) Freshwater **Total** @ 100 mg/L Hardness	-	150	-	2.46	-	198	11	9.33	3.18	-	52.2	5	-	-	120	5.2	-
H Health (µg/L) Water & Org	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H Health (µg/L) Org Only	4300	-	-	-	-	-	-	-	-	0.051	4600	-	-	6.3	-	220,000	-
Numeric Basin Plan Objective (µg/L) (MCL, site specific)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Effluent Reasonable Potential	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Reasonable Potential	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Effluent Limitation Required	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Constituent	2,3,7,8-TCDD (Dioxin)	Acrolein	Acrylonitrile	Benzene	Bromoform	Carbon Tetrachloride	Chlorobenzene
CTR #	**#16**	**#17**	**#18**	**#19**	**#20**	**#21**	**#22**
EFFLUENT							
4/12/2001	3.029E-12	-	-	< 0.134	< 0.39	< 0.184	< 0.095
7/10/2001	3.028E-12	-	-	< 0.134	< 0.39	< 0.184	< 0.095
10/9/2001	3.028E-12	-	<	< 0.134	< 0.39	< 0.184	< 0.095
1/7/2002	3.254E-12	-	<	< 0.134	< 0.39	< 0.184	< 0.095
4/9/2002	3.028E-12						
7/10/2002	3.028E-12						
10/2/2002	3.028E-12						
MEC (µg/L)	3.254E-12		<	< 0.134	< 0.39	< 0.184	< 0.095
RECEIVING WATER							
Max Background	0.000E+00		< 0	0.0	0.00	< 0.0	< 0.0
SWRCB MLs (µg/L) SIP Appendix 4		2.0	2.0	0.5	0.5	0.5	0.5
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	1.400E-08	780	0.66	71	360	4.4	21,000
Reasonable Potential							
Effluent	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO

Constituent	**Chlorodibromo-methane**	**Chloroethane**	**2-Chloro-ethylvinyl Ether**	**Chloroform**	**Dichloro-bromomethane**	**1,1-Dichloro-ethane**
CTR #	**#23**	**#24**	**#25**	**#26**	**#27**	**#28**
EFFLUENT						
4/12/2001	< 0.188	< 0.226		5.2	< 0.117	< 0.195
7/10/2001	< 0.188	< 0.226	-	< 0.16	< 0.117	< 0.195
10/9/2001	< 0.188	< 0.226	-	< 0.16	< 0.117	< 0.195
1/7/2002	< 0.188	< 0.226	-	< 0.16	< 0.117	< 0.195
MEC (µg/L)	< 0.188	< 0.226		5.2	< 0.117	< 0.195
RECEIVING WATER						
Max Background		< 0.0	T	< 0.0	< 0.0	
SWRCB MLs (µg/L) SIP Appendix 4	0.5	0.5	1	0.5	0.5	0.5
BP Obj (µg/L)	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	Reserved	-	-
H Health (µg/L) Org Only	34	-	-	Reserved	46	-
Reasonable Potential						
Effluent	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO

Constituent	1,2-Dichloro-ethane	1,1-Dichloro-ethylene	1,2-Dichloro-propane	1,3-Dichloro-propylene	Ethyl benzene	Methyl Bromide (Bromomethane)	Methyl Chloride (Chloromethane)
CTR #	**#29**	**#30**	**#31**	**#32**	**#33**	**#34**	**#35**
EFFLUENT							
4/12/2001	< 0.195	< 0.256	< 0.167	< 0.308	< 0.151	< 0.488	< 0.269
7/10/2001	< 0.195	< 0.256	< 0.167	< 0.308	< 0.151	< 0.488	< 0.269
10/9/2001	< 0.195	< 0.256	< 0.167	< 0.308	< 0.151	< 0.488	< 0.269
1/7/2002	< 0.195	< 0.256	< 0.167	< 0.308	< 0.151	< 0.488	< 0.269
MEC (µg/L)	< 0.195	< 0.256	< 0.167	< 0.308	< 0.151	< 0.488	< 0.269
RECEIVING WATER							
Max Background	< 0.0	< 0.0	< 0.0	< 0.0	< 0.0	**0.0**	< 0.0
SWRCB MLs (µg/L) SIP Appendix 4	0.5	0.5	0.5	0.5	0.5	1.0	0.5
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	99	3.2	39	1,700	29,000	4,000	-
Reasonable Potential							
Effluent	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO

Constituent	Methylene Chloride (Dichloromethane)	1,1,2,2-Tetra-chloroethane	Tetrachloro-ethylene	Toluene	1,2-Trans-Dichloro- ethylene	1,1,1- Trichloro-ethane
CTR #	**#36**	**#37**	**#38**	**#39**	**#40**	**#41**
EFFLUENT						
4/12/2001	< 5.0	< 0.372	< 0.452	< 0.191	< 0.196	< 0.274
7/10/2001	< 5.0	< 0.372	< 0.452	0.58	< 0.196	< 0.274
10/9/2001	< 5.0	< 0.372	< 0.452	< 0.191	< 0.196	< 0.274
1/7/2002	< 5.0	< 0.372	< 0.452	0.191	< 0.196	< 0.274
MEC (µg/L)	< 5.0	< 0.372	< 0.452	0.58	< 0.196	< 0.274
RECEIVING WATER						
Max Background	< 0.0	< 0.0	< 0.0	< 0.0		< 0.0
SWRCB MLs (µg/L) SIP Appendix 4	0.5	0.5	0.5	0.5	0.5	0.5
BP Obj (µg/L)	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-
H Health (µg/L) Org Only	1,600	11	8.85	200,000	140,000	-
Reasonable Potential						
Effluent	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO

Constituent	**1,1,2 Trichloro-ethane**	**Trichloro-ethylene**	**Vinyl Chloride**	**2-Chloro-phenol**	**2,4 Dichloro-phenol**	**2,4-Dimethyl-phenol**
CTR #	**#42**	**#43**	**#44**	**#45**	**#46**	**#47**
EFFLUENT						
4/12/2001	< 0.219	< 0.206	< 0.238	< 2.786	< 2.344	< 2.318
7/10/2001	< 0.219	< 0.206	< 0.238	< 2.786	< 2.344	< 2.318
10/9/2001	< 0.219	< 0.206	< 0.238	< 2.786	< 2.344	< 2.318
1/7/2002	< 0.219	< 0.206	< 0.238	< 2.786	< 2.344	< 2.318
MEC (µg/L)	< 0.219	< 0.206	< 0.238	< 2.786	< 2.344	< 2.318
RECEIVING WATER						
Max Background	< 0.0	< 0.0	< 0.0	< 0	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	0.5	0.5	0.5	2	1	1
BP Obj (µg/L)	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-
H Health (µg/L) Org Only	42	81	525	400	790	2,300
Reasonable Potential						
Effluent	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO

Constituent	**2-Methyl 4,6-Dinitrophenol**	**2,4-Dinitro-phenol**	**2-Nitro-phenol**	**4-Nitro-phenol**	**3-Methyl-4-Chlorophenol**	**Pentachloro-phenol**	**Phenol**
CTR #	**#48**	**#49**	**#50**	**#51**	**#52**	**#53**	**#54**
EFFLUENT							
4/12/2001	< 1.34	< 3.699	< 2.291	< 3.775	< 2.26	< 1.386	< 2.699
7/10/2001	< 1.34	< 3.699	< 2.291	< 3.775	< 2.26	< 1.386	< 2.699
10/9/2001	< 1.34	< 3.699	< 2.291	< 3.775	< 2.26	< 1.386	< 2.699
1/7/2002	< 1.34	< 3.699	< 2.291	< 3.775	< 2.26	< 1.386	< 2.699
MEC (µg/L)	< 1.34	< 3.699	< 2.291	< 3.775	< 2.26	< 1.386	< 2.699
RECEIVING WATER							
Max Background	< 0	< 0	< 0	< 0	< 0	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	5	5	10	5	1	1	1
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	11	-
CCC (µg/L)	-	-	-	-	-	8.2	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	765	14,000	-	-	-	8.2	4,600,000
Reasonable Potential							
Effluent	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO

Constituent	2,4,6-Tri-chlorophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzidene	Benzo(a) Anthracene	Benzo(a) Pyrene
CTR #	**#55**	**#56**	**#57**	**#58**	**#59**	**#60**	**#61**
EFFLUENT							
4/12/2001	< 1.469	< 1.089	< 1.506	< 1.073	-	< 1.726	< 1.213
7/10/2001	< 1.469	< 1.089	< 1.506	< 1.073	-	< 1.726	< 1.213
10/9/2001	< 1.469	< 1.089	< 1.506	< 1.073	-	< 1.726	< 1.213
1/7/2002	< 1.469	< 1.089	< 1.506	< 1.073	-	< 1.726	< 1.213
MEC (µg/L)	< 1.469	< 1.089	< 1.506	< 1.073		< 1.726	< 1.213
RECEIVING WATER							
Max Background	< 0	< 0	< 0	< 0	T	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	10	0.5	0.2	2	5	5	2
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	6.5	2,700	-	110,000	0.00054	0.049	0.049
Reasonable Potential							
Effluent	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO

Constituent	Benzo(b) Fluoranthene	Benzo(ghi) Perylene	Benzo(k) Fluoranthene	Bis (2-Chloro-ethoxy) Methane	Bis (2-Chloro-ethyl) Ether	Bis (2-Chloro-isopropyl) Ether
CTR #	**#62**	**#63**	**#64**	**#65**	**#66**	**#67**
EFFLUENT						
4/12/2001	< 2.298	< 1.887	< 2.661	< 1.869	< 2.321	< 3.27
7/10/2001	< 2.298	< 1.887	< 2.661	< 1.869	< 2.321	< 3.27
10/9/2001	< 2.298	< 1.887	< 2.661	< 1.869	< 2.321	< 3.27
1/7/2002	< 2.298	< 1.887	< 2.661	< 1.869	< 2.321	< 3.27
MEC (µg/L)	< 2.298	< 1.887	< 2.661	< 1.869	< 2.321	< 3.27
RECEIVING WATER						
Max Background	< 0	< 0	< 0	< 0	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	10	0.1	2	5	1	2
BP Obj (µg/L)	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-
H Health (µg/L) Org Only	0.049	-	0.049	-	1.4	170,000
Reasonable Potential						
Effluent	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO

Constituent	Bis (2-Ethyl- hexyl) Phthalate	4-Bromophenyl Phenyl Ether	Butylbenzyl Phthalate	2-Chloro- naphthalene	4-Chlorophenyl Phenyl Ether	Chrysene	Dibenzo(a,h) Anthracene
CTR #	**#68**	**#69**	**#70**	**#71**	**#72**	**#73**	**#74**
	(Also See						
EFFLUENT	**Worksheet 4)**						
4/12/2001	**53**	< 1.333	< 1.332	< 1.762	< 1.116	< 1.24	< 1.638
7/10/2001	< 4.044	< 1.333	< 1.332	< 1.762	< 1.116	< 1.24	< 1.638
10/9/2001	< 4.044	< 1.333	< 1.332	< 1.762	< 1.116	< 1.24	< 1.638
1/7/2002	< 4.044	< 1.333	< 1.332	< 1.762	< 1.116	< 1.24	< 1.638
MEC (µg/L)	53	< 1.333	< 1.332	< 1.762	< 1.116	< 1.24	< 1.638
RECEIVING WATER							
Max Background	< 0	< 0	< 0	< 0	< 0	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	5	5	10	10	5	**5**	0.1
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	5.9	-	5,200	4,300	-	0.049	0.049
Reasonable Potential							
Effluent	**YES**	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	**YES**	NO	NO	NO	NO	NO	NO

Constituent	**1,2-Dichloro-benzene**	**1,3-Dichloro-benzene**	**1,4-Dichloro-benzene**	**3,3-Dichloro-benzidine**	**Diethyl Phthalate**	**Dimethyl Phthalate**
CTR #	**#75**	**#76**	**#77**	**#78**	**#79**	**#80**
EFFLUENT						
4/12/2001	< 0.172	< 0.186	< 0.188	< 2.579	< 2.165	< 2.237
7/10/2001	< 0.172	< 0.186	< 0.188	< 2.579	< 2.165	< 2.237
10/9/2001	< 0.172	< 0.186	< 0.188	< 2.579	< 2.165	< 2.237
1/7/2002	< 0.172	< 0.186	< 0.188	< 2.579	< 2.165	< 2.237
MEC (µg/L)	< 0.172	< 0.186	< 0.188	< 2.579	2.165	< 2.237
RECEIVING WATER						
Max Background	< 0	< 0	< 0	< 0	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	2	1	1	**5**	2	2
BP Obj (µg/L)	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-
H Health (µg/L) Org Only	12,000	2,600	2,600	0.077	120,000	2,900,000
Reasonable Potential						
Effluent	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO

Constituent	Di-n-Butyl Phthalate	2,4-Dinitro-toluene	2,6-Dinitro-toluene	Di-n-Octyl Phthalate	1,2-Diphenyl-hydrazine	Fluoranthene	Fluorene
CTR #	**#81**	**#82**	**#83**	**#84**	**#85**	**#86**	**#87**
EFFLUENT							
4/12/2001	< 4.337	< 1.201	< 1.245	32	-	< 1.2	< 0.953
7/10/2001	< 4.337	< 1.201	< 1.245	< 0.934	-	< 1.2	< 0.953
10/9/2001	< 4.337	< 1.201	< 1.245	< 0.934	-	< 1.2	< 0.953
1/7/2002	< 4.337	< 1.201	< 1.245	< 0.934	-	< 1.2	< 0.953
MEC (µg/L)	< 4.337	< 1.201	< 1.245	32		< 1.2	< 0.953
RECEIVING WATER							
Max Background	< 0	< 0	< 0	< 0		< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	10	5	5	10	1	0.05	0.1
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	12,000	9.1	-	-	0.54	370	14,000
Reasonable Potential							
Effluent	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO

Constituent	Hexachloro-benzene	Hexachloro-butadiene	Hexachloro-cyclopentadiene	Hexachloro-ethane	Indeno(1,2,3-cd) Pyrene	Isophorone
CTR #	**#88**	**#89**	**#90**	**#91**	**#92**	**#93**
EFFLUENT						
4/12/2001	< 1.527	< 4.205	< -	< 4.579	< 1.499	< 1.493
7/10/2001	< 1.527	< 4.205	< -	< 4.579	< 1.499	< 1.493
10/9/2001	< 1.527	< 4.205	< -	< 4.579	< 1.499	< 1.493
1/7/2002	< 1.527	< 4.205	< -	< 4.579	< 1.499	< 1.493
MEC (µg/L)	< 1.527	< 4.205	< -	< 4.579	< 1.499	< 1.493
RECEIVING WATER						
Max Background	< 0	< 0	< 0	< 0	< 0	< 0
SWRCB MLs (µg/L) SIP Appendix 4	1	1	5	1	0.05	1
BP Obj (µg/L)	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-
H Health (µg/L) Org Only	0.00077	50	17,000	8.9	0.049	600
Reasonable Potential						
Effluent	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO

Constituent	**Naphthalene**	**Nitro-benzene**	**N-nitrosodi-methylamine**	**N-Nitrosodi-n-Propylamine**	**N-Nitrosodi-phenylamine**	**Phenanthrene**	**Pyrene**
CTR #	**#94**	**#95**	**#96**	**#97**	**#98**	**#99**	**#100**
EFFLUENT							
4/12/2001	< 3.053	< 15	< -	< 2.034	< 2.162	< 1.522	< 1.346
7/10/2001	< 3.053	< 15	< -	< 2.034	< 2.162	< 1.522	< 1.346
10/9/2001	< 3.053	< 15	< -	< 2.034	< 2.162	< 1.522	< 1.346
1/7/2002	< 3.053	< 15	< -	< 2.034	< 2.162	< 1.522	< 1.346
MEC (µg/L)	< 3.053	< 15	< -	< 2.034	< 2.162	< 1.522	< 1.346
RECEIVING WATER							
Max Background	< 0	< 0	< 0	< 0	< 0	< 0	0
SWRCB MLs (µg/L) SIP Appendix 4	0.2	1	5	5	1	0.05	0.05
BP Obj (µg/L)	-	-	-	-	-	-	-
CMC (µg/L)	-	-	-	-	-	-	-
CCC (µg/L)	-	-	-	-	-	-	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-
H Health (µg/L) Org Only	-	1,900	8.1	1.4	16	-	11,000
Reasonable Potential							
Effluent	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO

Constituent	1,2,4-Trichloro-benzene	Aldrin	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Chlordane	4,4-DDT
CTR #	**#101**	**#102**	**#103**	**#104**	**#105**	**#106**	**#107**	**#108**
EFFLUENT								
4/12/2001	< 3.764	< 1.645	< 2.01	< 0.003	< 1.998	< 2.968	< 0.061	< 1.548
7/10/2001	< 3.764	< 1.645	< 2.01	< 0.003	< 1.998	< 2.968	< 0.061	< 1.548
10/9/2001	< 3.764	< 1.645	< 2.01	< 0.003	< 1.998	< 2.968	< 0.061	< 1.548
1/7/2002	< 3.764	< 1.645	< 2.01	< 0.003	< 1.998	< 2.968	< 0.061	< 1.548
MEC (µg/L)	< 3.764	< 1.645	< 2.01	< 0.003	< 1.998	< 2.968	< 0.061	< 1.548
RECEIVING WATER								
Max Background	< 0	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00
SWRCB MLs (µg/L) SIP Appendix 4	1	0.005	0.01	< 0.005	0.02	0.005	0.1	0.01
BP Obj (µg/L)	-	-	-	-	-	-	-	-
CMC (µg/L)	-	3	-	-	0.95	-	2.4	1.1
CCC (µg/L)	-	-	-	-	-	-	0.0043	0.001
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-	-
H Health (µg/L) Org Only	-	0.00014	0.013	0.046	0.063	-	0.00059	0.00059
Reasonable Potential								
Effluent	NO	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO	NO

Constituent	4,4-DDE	4,4-DDD	Dieldrin	alpha-Endosulfan	beta-Endosulfan	Endosulfan Sulfate	Endrin	Endrin Aldehyde
CTR #	**#109**	**#110**	**#111**	**#112**	**#113**	**#114**	**#115**	**#116**
EFFLUENT								
4/12/2001	< 1.448	< 2.086	< 1.536	< 1.97	< 2.161	< 1.911	< 1.586	< 1.162
7/10/2001	< 1.448	< 2.086	< 1.536	< 1.97	< 2.161	< 1.911	< 1.586	< 1.162
10/9/2001	< 1.448	< 2.086	< 1.536	< 1.97	< 2.161	< 1.911	< 1.586	< 1.162
1/7/2002	< 1.448	< 2.086	< 1.536	< 1.97	< 2.161	< 1.911	< 1.586	< 1.162
MEC (µg/L)	< 1.448	< 2.086	< 1.536	< 1.97	< 2.161	< 1.911	< 1.586	< 1.162
RECEIVING WATER								
Max Background	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00	< 0.00
SWRCB MLs (µg/L) SIP Appendix 4	0.05	0.05	0.01	0.02	0.01	0.05	0.01	0.01
BP Obj (µg/L)	-	-	-	-	-	-	-	-
CMC (µg/L)	-	-	0.24	0.22	0.22	-	0.086	-
CCC (µg/L)	-	-	0.056	0.056	0.056	-	0.036	-
H Health (µg/L) Water & Org Only	-	-	-	-	-	-	-	-
H Health (µg/L) Org Only	0.00059	0.00084	0.00014	240	240	240	0.81	0.81
Reasonable Potential								
Effluent	NO	NO	NO	NO	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO	NO	NO	NO	NO

Constituent	Heptachlor	Heptachlor Epoxide	Polychlorinated biphenyls (PCBs)	Toxaphene
CTR #	**#117**	**#118**	**#119-125**	**#126**
EFFLUENT				
4/12/2001	< 1.267	< 1.475	< 0.12	< 0.87
7/10/2001	< 1.267	< 1.475	< 0.12	< 0.87
10/9/2001	< 1.267	< 1.475	< 0.12	< 0.87
1/7/2002	< 1.267	< 1.475	< 0.12	< 0.87
MEC (µg/L)	< 1.267	< 1.475	< 0.12	< 0.87
RECEIVING WATER				
Max Background	< 0.00	< 0.00	< 0.00	< 0
SWRCB MLs (µg/L) SIP Appendix 4	0.01	0.01	0.5	0.5
BP Obj (µg/L)	-	-	-	-
CMC (µg/L)	0.52	0.52	-	0.73
CCC (µg/L)	0.0038	0.0038	0.014	0.0002
H Health (µg/L) Water & Org Only	-	-	-	-
H Health (µg/L) Org Only	0.00021	0.00011	0.00017	0.00075
Reasonable Potential				
Effluent	NO	NO	NO	NO
Receiving Water	NO	NO	NO	NO
Limitation Required	NO	NO	NO	NO

ATTACHMENT E
FULL CTR ANALYIS FOR
BIS (2-ETHYLHEXYL) PHTHALATE

CITY OF VISALIA WWTF
TULARE COUNTY

Constituent	Bis (2-Ethyl-hexyl) Phthalate	Constituent	Bis (2-Ethyl-hexyl) Phthalate	Constituent	Bis (2-Ethyl-hexyl) Phthalate	Test Mthd
CTR #	**#68**	**CTR #**	**#68**	**CTR #**	**#68**	**Used**
Scenario 1		**Scenario 2**		**Scenario 3**		
EFFLUENT		**EFFLUENT**		**EFFLUENT**		
10/26/1990	< 5.0			10/26/1990	< 5.0	EPA 625
10/2/1991	< 10.0			10/2/1991	< 5.0	EPA 625
9/24/1992	< 5.0			9/24/1992	< 5.0	EPA 625
9/17/1993	< 5.0			9/17/1993	< 5.0	EPA 625
9/27/1994	< 10.0			9/27/1994	< 10.0	EPA 625
9/27/1995	< 5.0			9/27/1995	< 5.0	EPA 625
10/1/1996	< 5.0			10/1/1996	< 5.0	EPA 8270
9/19/1997	< 5.0			9/19/1997	< 5.0	EPA 8270
10/1/1998	< 10.0			10/1/1998	< 10.0	EPA 8270
9/22/1999	< 5.0			9/22/1999	< 5.0	EPA 8270
9/13/2000	< 5.0			9/13/2000	< 5.0	EPA 8270
4/12/2001	**53**	4/12/2001	**53**	4/12/2001	-	EPA 8270
7/10/2001	< 4.044	7/10/2001	< 4.044	7/10/2001	< 4.044	EPA 8270
10/9/2001	< 4.044	10/9/2001	< 4.044	10/9/2001	< 4.044	EPA 8270
1/7/2002	< 4.044	1/7/2002	< 4.044	1/7/2002	< 4.044	EPA 8270
MEC (µg/L)	53	MEC (µg/L)	53	MEC (µg/L)	10	
RECEIVING WATER		**RECEIVING WATER**		**RECEIVING WATER**		
Max Background	< 0	Max Background	< 0	Max Background	< 0	
SWRCB MLs (µg/L) SIP Appendix 4	5	SWRCB MLs (µg/L) SIP Appendix 4	5	SWRCB MLs (µg/L) SIP Appendix 4	5	
BP Obj (µg/L)	-	BP Obj (µg/L)	-	BP Obj (µg/L)	-	
CMC (µg/L)	-	CMC (µg/L)	-	CMC (µg/L)	-	
CCC (µg/L)	-	CCC (µg/L)	-	CCC (µg/L)	-	
H Health (µg/L) Water & Org Only	-	H Health (µg/L) Water & Org Only	-	H Health (µg/L) Water & Org Only	-	
H Health (µg/L) Org Only	5.9	H Health (µg/L) Org Only	5.9	H Health (µg/L) Org Only	5.9	
Reasonable Potential		Reasonable Potential		Reasonable Potential		
Effluent	YES	Effluent	YES	Effluent	YES	
Receiving Water	NO	Receiving Water	NO	Receiving Water	NO	
Limitation Required	YES	Limitation Required	YES	Limitation Required	YES	
Monitoring Required	YES	Monitoring Required	YES	Monitoring Required	YES	

Notes:

1. All sample results from 1990 to January 2002 are non-detect except for 4/12/2001 (14 of 15 samples).
2. All sample results shown, except for 4/12/01, are the laboratory detection limits (either practical quantitation limit, detectio limit for reporting purpose, or method detection limit as indicated on the testing laboratory report), and indciated as MECs as required by the SIP.
3. MECs (laboratory reported dection limits) for 10/2/91, 9/27/94, and 10/1/98 are higher than the WQC of 5.9 µg/L. Thus, inclusion of any of these sample results in the RPA will cause a resonable potential.

WASTE DISCHARGE REQUIREMENTS ORDER NO._____
FOR
CITY OF VISALIA
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

ATTACHMENT F
INFORMATION NEEDS FOR SLUDGE MANAGEMENT PLAN

A. Wastewater Treatment Facility (WWTF)

1. Describe treatment processes at the wastewater treatment facility.
2. List significant industrial users (SIUs) that discharge to the wastewater treatment facility and describe how SIUs affect sludge production, sludge handling, and biosolids disposal.
3. Indicate whether the WWTF has an adopted source control ordinance or a pretreatment program, and if the latter whether the program is approved by the Board.
4. Indicate whether WWTF accepts septage and, if so, describe septage handling operation facilities.
5. Provide a WWTF site map showing:
    a. existing sludge handling facilities (e.g., sludge drying beds and sludge storage areas)
    b. abandoned sludge handling facilities (if applicable)
    c. location of groundwater monitoring wells, if any, and groundwater gradient.

B. Sludge Production

1. Provide a schematic diagram showing solids flow and sludge handling operations; include, where applicable, supernatant flow and handling operations.
2. Specify the quantity of sludge expected to annually accumulate in each wastewater treatment process, how it is quantified, and the expected removal frequency.
3. For sludge handling facilities with sludge drying beds:
    a. Describe number and size of sludge drying beds.
    b. Describe sludge drying bed construction (e.g., liner, leachate collection system).
    c. If sludge drying beds are not lined, thoroughly describe measures taken to ensure that area groundwater is not adversely affected by sludge drying operations.
    d. Indicate the expected frequency with which sludge will be applied to and removed from sludge drying beds.
4. Describe how biosolids are transferred to onsite biosolids storage facility (if applicable). If biosolids are removed directly from sludge drying beds, provide a plan that indicates when during the year you expect to dispose of biosolids and explain that whoever is responsible for disposing of your biosolids will be able to remove and dispose it at this time.

C. Biosolids Characterization

1. Describe proposed sampling procedures by indicating number of samples, sample locations, and sample composition. For reference consult *POTW Sludge Sampling an Analysis Guidance Document*, published by the EPA Publication No. 833-B-89-100.
2. Describe the methods proposed to meet the necessary levels of pathogen reduction (i.e., Class A or B according to 40 CFR 503.32) for the proposed method of sludge disposal.
3. Describe the methods proposed to meet vector reduction requirements, in accordance with 40 CFR Part 503.33.

D. Biosolids Storage

1. If on-site biosolids storage is used,
   a. Describe:
      i. Size of biosolids storage area
      ii. How frequently it will be used (emergency basis only or routine use)
      iii. Typical storage duration
      iv. Leachate controls
      v. Erosion controls
      vi. Run-on/runoff controls
   b. Indicate measures that will be taken to ensure that area groundwater is not adversely affected by the biosolids storage facility.
   c. For biosolids storage facilities that contain biosolids between 1 October and 30 April, describe how facilities are designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
   d. Provide a map of showing setback distances from (where applicable)
      i. Property lines
      ii. Domestic water supply wells
      iii. Non-Domestic water supply wells
      iv. Public roads and occupied onsite residences
      v. Surface waters, including wetlands, creeks, ponds, lakes, underground aqueducts, and marshes
      vi. Primary agricultural drainage ways
      vii. Occupied non-agricultural buildings and off-site residences

viii. Primary tributary to a waterway or reservoir used for domestic water supply

ix. Domestic surface water supply intake

E. Spill Response Plan

1. Emergency contacts and notification procedures
2. Personal protective equipment requirements
3. Response instructions for
   a. spill during biosolids transport
   b. storage facility failure
   c. when hazardous or other unauthorized material is found

F. Method of Disposal

1. Describe and provide the following information related to biosolids disposal method(s). If more than one method will be utilized, include the percentage of annual biosolids production expected to be disposed of by each method.
   a. Landfill Disposal
      i. Name(s) and location(s) of landfill(s).
      ii. Waste discharge requirements order numbers adopted by the Regional Board that regulate the landfill(s).
      iii. Present classification of the landfill(s).
      iv. Name and telephone number of the contact person at the landfill(s).

   b. Incineration
      i. Name(s) and location(s) of incineration site(s).
      ii. Waste discharge requirements order numbers adopted by the Regional Board that regulate the incineration site(s).
      iii. Method of disposal of ash from the incineration site(s).
      iv. Names and locations of facilities receiving ash from the incineration site(s), if applicable.
      v. Name and telephone number of the contact person at the incineration site(s).
   c. Composting
      i. Name(s) and location(s) of composting site(s).
      ii. Waste discharge requirements order numbers adopted by the Regional Board that regulate the composting site(s).
      iii. Name and telephone number of the contact person at the composting site(s).

d. Land Application

i. Ownership of the site(s) where biosolids are applied.

ii. Assessor Parcel Numbers (APNs) of site(s) where biosolids are applied.

iii. Waste discharge requirements order numbers adopted by the Regional Board that regulate the biosolids application site(s).

WASTE DISCHARGE REQUIREMENTS ORDER NO._____
FOR
CITY OF VISALIA
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

ATTACHMENT G
STANDARD MONITORING WELL PROVISIONS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing at least the information specified in this document. Wells may be installed after the Executive Officer's approval of the work plan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. A registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California must sign all workplans and reports.

Monitoring Well Installation Workplan

A. General Information:
   - Monitoring well locations and rationale
   - Survey details
   - Equipment decontamination procedures
   - Health and safety plan
   - Topographic map showing any existing monitoring wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details: describe drilling and logging methods

C. Monitoring Well Design:

Casing diameter	Type of well cap
Borehole diameter	Size of perforations and rationale
Depth of surface seal	Grain size of sand pack and rationale
Well construction materials	Thickness and position of bentonite seal and sand pack
Diagram of well construction	Depth of well, length and position of perforated interval

D. Well Development:
   - Method of development to be used
   - Method of determining when development is complete
   - Method of development water disposal

E. Surveying Details: discuss how each well will be surveyed to a common reference point

F. Soil Sampling (if applicable):

Cuttings disposal method	Number of soil samples and rationale
Analyses to be run and methods	Location of soil samples and rationale
Sample collection and preservation method	QA/QC procedures
Intervals at which soil samples are to be collected	

G. Well Sampling:

Minimum time after development before sampling (48 hours)
Well purging method and amount of purge water
Sample collection and preservation method
QA/QC procedures

H. Water Level Measurement:

The reference point and ground surface elevations at each monitoring well shall be determined within 0.01 foot. Method and time of water level measurement shall be specified.

I. Proposed time schedule for work.

Monitoring Well Installation Report of Results

A. Well Construction:

Number and depth of wells drilled
Date(s) wells drilled
Description of drilling and construction
Approximate locations relative to WWTF and discharge area(s)
A well construction diagram for each well containing the following details:

Monitoring well number	Depth to top of bentonite seal[1]
Location	Thickness of bentonite seal
Date drilled	Thickness of concrete grout
Total depth drilled[1]	Boring diameter
Depth of open hole[1, 2]	Casing diameter
Footage of hole collapsed	Casing material
Length of slotted casing installed	Size of perforations
Depth of bottom of casing[1]	Well elevation at top of casing
Depth to top of sand pack[1]	Date of water level measurement
Number of bags of sand	Depth to which water was first found[1]
Thickness of sand pack	Depth to which water was found after perforating[1]

[1] From ground surface
[2] Same as total depth if no caving appears

B. Well Development:

Date(s) of development of each well
Method of development
Volume of water purged from well
How well development completion was determined
Method of effluent disposal
Field notes from well development should be included in report

C. Well Surveying: provide for each well

Reference elevation (feet above mean sea level to within 0.01 foot)
Ground surface elevation (feet above mean sea level to within 0.01 foot)
Horizontal geodetic location, where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum
Surveyor's notes

D. Water Sampling:

Date(s) of sampling	Sample identification
How well was purged	Analytical methods used
How many well volumes purged	Laboratory analytical data sheets
Levels of temperature, EC, and pH at stabilization	Water level elevation(s)
Sample collection, handling, and preservation methods	Groundwater contour map

E. Soil Sampling (if applicable):

Date(s) of sampling
Sample collection, handling, and preservation method
Sample identification
Analytical methods used
Laboratory analytical data sheets

2 January 2002